University of Cincinnati

Date: 5/14/2012

I, Wangi Chai M.D., hereby submit this original work as part of the requirements for the degree of Master of Design in Design.

It is entitled:
Porcelain Color Guide and Application Principles

Student's name: Wangi Chai M.D.

This work and its defense approved by:

Committee chair: Paul Zender, MFA
Committee member: Phyllis Borcherding, MS
Committee member: Renee Seward Renee Seward

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Porcelain Color Guide and Application Principles

By

Wanqi Chai

Bachelor of Arts in Art Design

Tongji University

Shanghai, China

2009

Submitted to Mike Zender of the

College of Design, Art, Architecture and Planning of the

University of Cincinnati

in partial fulfillment of

the requirements for

the Degree of

Mater of Design

May, 2012
ABSTRACT

We know there is many color guides and color schemes for designers use, just like the swatch libraries in Adobe Illustrator. It has thousands of color combinations for designers easily to choose a color to achieve their design purpose. My thesis is focusing on making a special Chinese color guide and a series of Chinese color combinations, which are close to Chinese people’s aesthetic. My color guide could help designers easily decide which color they would like use while they are designing for Asian audience.

My hypothesis is the colors found in Chinese porcelain art suggest color palettes that will appeal to Asian's visual aesthetic. Porcelain culture has existed for thousands of year in Asia. Those colors not only represent the technical conditions of their time, they also deeply reveals the social and culture background, aesthetic psychology of the times. Until today, porcelain colors deeply affected East Asian aesthetic trends.

On the other hand, sociological and cultural chromatics is becoming more and more important today. The mental imagery of color reveals the perception, emotion, idea, and motivation of human beings. The purpose of my thesis is to refine key colors from porcelains; find out and build up its own application principles for designer’s use, and prove my hypothesis that porcelain color could satisfy Asian people’s taste.
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CHAPTER I

THE HYPOTHESIS

Section 1 The significance of color design

1.1 What is color design?

Generally speaking, color design is collocation of different colors. Color phenomena of nature are rich and varied. So are the color schemes in color design. When people observe the around environment through their eyes, color comes into their sight first. Color produces a variety of visual effects, brings people different visual experience, and directly affects people’s aesthetic cognition, mood swings, even living conditions and work efficiency. Thke responsibility of color to a designer is to help the designer achieve a pre set goal. Since the color tone of a picture could deeply affects the impression of the audience, color scheme playss an important role in design.

Our surroundings are filled with color. Color is caused by light, and light has its physical properties. Exploring the nature and causes of light could help us better understand the causes of color and the psychological feelings it brings us. The primary colors are the basic elements of color composition. By mixing primary colors with an appropriate proportion can get a variety of different colors. Hue, value and chroma, these three elements of color are the very basic properties and the most important concept of color. They are also the basis of color study.
Two bright colors together can produce strong irritation; two soft colors together can produce peaceful harmony. Different color combinations can bring people vastly different visual experience. Through scientific training we could understand the meaning of color combination and master the principles of color scheme, thus express the theme of a work via intuitive and effective color design.

1.2 The function of color design

1.2.1 Identifiability

A design work generally includes three elements: color, image and words. Humans are very sensitive to color. According to an interview with Mr. Choi Qiren, the famous artist, designer and Professor of Hongkong University, when a viewer seeing designed piece for the first time, color came to their attention firstly, and then image, and lastly the words.\(^1\) Another research done by KISSmetrics also shows that 93% consumers place visual appearance above other factors when shopping and 85% place color as a primary reason for why they buy a particular product. \(^2\) As a result, color offers a stronger impression than image and words. We can say that color is an efficient way for designers to express their design concept. A great color combination can build strong attraction and identity, uses the recognizability of colors to strengthen a work’s character.

1.2.2 Imagery

\(^1\) Interview with Mr. Choi Qiren (Chinese): http://www.idea168.cn/article/graphic/color/info_2008100821394936.html
\(^2\) How do colors affect purchase? http://blog.kissmetrics.com/color-psychology/?wide=1
Sometimes we saw the colors on a package, we can tell what the product is immediately. That is because of the relatedness between the color images and product characters. Every product can be transformed to a “conceptual color” in consumers’ minds. Sometimes the imagery of colors directly affects consumers’ decision. For instance, bright and soft color compositions (like pink, orange) are usually used in women’s products design. The subtly and elegant style could cater to female consumers. Therefore color imagery strategy stands a very important role in a design.

1.2.3 Perceptibility

According to the color theories and principles, designer can produce striking, attractive, legible and interesting color compositions. Different colors cause different visual perceptions. For example black, tea-brown, navy-blue and black-green give people a conservative and solemn impression; while red, gold, light green and pale yellow give a vivid and romantic impression. A unique color composition can arouse reviews’ potential perception and make a design work stand out from the competitors.

Section 2 Currently situation of color design in China

2.1 “Color lights China”

3 https://www.quicklabel.com/blog/2012/01/gender-targeted-packaging-9-packages-designed-to-appeal-to-men-or-women/
As the Mr. Yong Liang, the executive vice president of China Fashion Color Association said in the 4th Asian Color Forum, “color is lighting China, becoming a new economic growth point in China”. China is entering a new era of color economy. A significant change of color design in China is under way.

2.1.1 Change One: Asian color connects with the world

For years Asian Color Forum have dedicated to the build international communication platform for designers. Encourage dialog and exchange between them so that they can learn from each other in mutual emulation and master the value of color design. After several years of development, Asian color research has come of age by the increase of international communications. Also this is a milestone of globalization of Asian color.

2.1.2 Change Two: China is entering a color economic era

Speaking about the development of China’s color economy, Mr. Liang used the word “earthshaking”. China’s color economy is experiencing the change from consciousness to action. “In the past many enterprise knew color is important, but didn’t know how to use color design to improve the value of products,” said Liang, “but facts have shown that color study and color design could help enterprises achieve a breakthrough development.”4 Now Chinese society already knew that color is also productivity. This change let people see the hope of China’s color economy.

2.1.3 Change Three: color boosts fashionable urbanization in China

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4 Interview with Mr. Yong Liang (Chinese): http://c.chinavisual.com/2007/08/02/c40115/index.shtml

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A city’s fashion somehow depends on the ability of accepting and shaping its color image. Recently, Wuxi, a city in Jiangsu Province has decided its development path as becoming a huge base of color application to the city’s identity system. Advantage color design will essentially touch people’s daily life and become the tools of emotional exchange in their lives. Color design is actually changing Chinese people’s aesthetic consciousness and promoting social development in China.

2.2 Returning to traditional color style will be new trends of design

Today’s art and has a connection to past art, and so color design has a connection to past color design as well. Although nowadays a variety of color concepts and principles have mushroomed and appeared in all kinds of media such as posters, books, magazines and websites, these new designs cannot exist without the influence and nourishing of traditional color culture and perception.

After the Cultural Revolution, Mainland China set off a wave of revivalism in design area. This narrow national style movement emphasized total replication of traditional culture, seldom considered about the unity of form and content of new design.

From early 1980th until now, the Reform and Opening and marketing economy brought vast spirit and active thought to Chinese designers. They have already realized that design should be linked with the times tightly; also it should be established deeply in traditional cultural. Consequently, there emerged a large number of Chinese style design. No matter architecture, graphic or product design, you can see traditional colors appeared as new forms in every aspect. Entering the second decades of 21st century, the returning of nature and traditional culture will continue to be the new trends in color design.
Section 3 Hypothesis

3.1 The problem to be solved

With entering into the 21st century, color design in China has already made progress. However, there still remains a gap between China and western countries even Asian counties such as Japan and Korea. This gap appears in different aspects such as thought ideals, cultural literacy, educational model and technological capability. In order to shorten the gap between China and other developed color design countries, we should enhance designers’ quality and arouse general people’s color perception, as Mr. Wei Cui, professor of Beijing Institute of Clothing Technology, said, “we should focus on color education, color broadcasting, traditional color study and exploring.”

3.2 The Hypothesis

My hypothesis is that understanding the impact of within Asian culture could help Asian designers to understand Asian color trends. Meanwhile porcelain color schemes and application principles could offer designers a guide of using porcelain color to satisfy the taste of Chinese people.

3.3 Why porcelain colors?

Porcelain culture has lasted thousands years in Asia. Those colors not only represent the technical conditions of their time, also deeply reveals the social and culture background, aesthetic psychology of the times. Until today porcelain colors still deeply affect on culture aesthetic trend
of East Asia. For instance, the acclaimed uniform of hostesses of 2008 Beijing Olympic was traditional Chinese women dress “Cheongsam” with blue and white porcelain colors and patterns.⁵

On the other hand, sociological and cultural chromatics is becoming more and more important today. People realized that the mental imagery of color reveals the perception, emotion, idea, and motivation of human beings. For example many Chinese mobile apps and social networks offer different colors compositions options, so that users could represent their daily mood via colors on their pages.

⁵ Olympic awards ceremony dress (Chinese): http://ido.3mt.com.cn/Article/200807/show1037211c30p1.html
CHAPTER II

TRADITIONAL COLOR AESTHETIC IN CHINESE CULTURE

Section 1 Traditional color perceptions in China

1.1 The overall view of traditional Chinese color perception

Chinese traditional color is a huge and mysterious color system. Different colors have different concept and expression; represent traditional customs of Chinese arts; inherit and develop aesthetic ideas of the nation. Traditional Chinese color represents the emotions and traditional cultural concepts, influenced by people’s value, life attitude, and aesthetic taste, and has natural born national affinity. In the premise of history and tradition, the concept of traditional Chinese color values the psychological effect of color, emphasizes the symbolic meaning of color, also exquisite visual effects. Speak from its cultural connotation, traditional arts usually takes more count of spirit than form in color application.

1.2 The Emergency and Structure of Traditional Color Perception

Primitive Chinese’s understanding of color starts with monochrome. In their mind time only has two forms: black night and white day. In the cycle of black and white, life gradually grows old until death. This is a irresistible truth. And mysterious red has been considered the symbol of life with the power of subduing evils and turning undead. For a very long time, black, white and red
have dominated the living activities and faith worships of primitive Chinese. Many Chinese
minorities maintain their tradition of fire god sacrifice. The red light of fire, just like the color of
blood, represents the vitality of life. Archaeology studies proved that monochromaticity is the
color feature of primitive Chinese. Many archaeological finds, from red mineral powder placed
with primitive bones to primitive dyeing decorations, all these evidences tell us that monochrome
has been used as the color application form by prehistoric man for a long time.⁶

From monochrome worship in primitive society to the five-color application in the later time of
Chinese slavery, Chinese people’s color perception has made a significant progress.⁷ The
development of society, the liberation of thought and the enhancement of spiritual level made
Chinese color arts have the possibility of various developments. In the past 2000 years, five-color
system theory has gradually become the base of traditional Chinese aesthetic.

1.2.1 The Original Five-Color Perception

The five-color utilization is documented as existing about 2000 years ago. In Xizhou
Dynasty, Chinese people already got a sense of orthodox and unorthodox color.
According to the record of “Shang Shu”⁸, an ancient classic in China, the traditional Five-
color system considers red, yellow, cyan (green, blue), white and black as orthodox
colors. Chinese culture think that the Taiji symbol represents “yin” and “yang”, the two
opposing principles in nature. “Yin and Yang” contains the basic five elements (gold,
wood, water, fire and earth) in the nature. And five colors just represent five elements
respectively.

⁶ Research of the causes of traditional Chinese color perception (Chinese):
http://www.colorchina.net.cn/forumthesis-2012-3.html
⁷ Ditto
The orthodox color contains the idea of honour and authority. Ancient Chinese found out that only red, yellow, cyan, black and white are the very basic and the purist elements of colors; other colors (unorthodox colors) are all come from the mixture of the five colors. That is why the five colors have been regarded as orthodox colors. With such definition and distinction between orthodox and unorthodox colors, the five colors became exclusive colors, which only served the etiquette of slave owner class. The Five-color system theory revealed the essential principle of color science, at the mean time laid a solid foundation of original Chinese color perception and aesthetics thought.

Figure1 Taiji, Five elements and Five colors

Traditional Five-color theory is a derivative of Yin and Yang philosophical thoughts. On the other hand, Five-color (Five elements) theory is a part of ancient Chinese philosophy. The ancients observed various phenomena in the nature, defined the meaning of colors according natural phenomenon. They behaved with awe; even emperors could not break such restriction of colors. Mr. Jiegang Gu, the expert on folklore, said, “Five elements is
the thought law of Chinese people, is the perception of system of universe in China. For the past 2000 years, it has a very deep root in Chinese culture.” The most special feature of ancient Chinese color perception is that they use universe phenomena to symbolize colors. The whole system is built on spontaneous, rational philosophic concept. The color symbol in Five-element theory shows that ancient Chinese seized the color tendency from physical objects, natural phenomena, and spatiotemporal changes. The utilization of references between inner essence and outer universe is the most important reason of longevity of Chinese color symbols.

The Yin and Yang philosophy considered the five elements as the source of all things of the world. Every thing could be reduced to metal, wood, water, fire and earth, and colors are no exception. The five colors are the original colors; their mixtures derive other hundreds of colors. At the same time, the five colors became the Rulers’ tool to establish and maintain the social etiquette. From Zhou Dynasty, strict color regulation has been set up for the royal ritual, religious sacrifice and other important social activities.

Terse, intuitive, plain but abstruse implied five-color system is the real reflection and essence of Chinese culture. It produced with political and philosophy purpose, rose with palace art and literature art, finally developed in folk art.

1.2.2 Color perception of Court and officialdom in feudal China

After China stepped in class society, the ruling classes and the ruled classes appeared in history. As the other cultural art, color art has divided into two different hierarchies: Royal style and folk style. Different color language and application in two styles constituted different aesthetic sense, standard, idea and value.

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9 Jiegang Gu, “Han Dunasty Academic Brief History”, People’s Publishing House, 2008
Royal colors are sumptuous and luxurious, express powers and wealth. In Tang and Song dynasties, cultural and artistic exchanging was very active. Literature, poetry, music, dancing, sculpture, architecture, painting and calligraphy were all very developed and advanced, deeply affected the cultures in Asian even western countries. The related color decorative arts also achieved a remarkable level. Yan Liben and Wu Daozi were outstanding representative court painters at that time. They excelled at decorative paintings and mostly took royal and noble life as inspiration. Painter Li Sixun and his son Li Zhaodao pioneered the style of “Jinbi Shanshui”, which means golden and green landscape painting. This kind of style has resplendent, magnificent, solemn and elegant color effects; and full of fine decorative feeling. Decorative Murals were extremely popular in Tang Dynasty. They could be seen at everywhere such as court, temples, noble graves and caves. On the one hand, decorative Murals reflected the social and cultural boom; on the other hand, it reflected the unprecedented high level of color decorative arts in Tang and Song dynasties.

*Figure2 “Jinbi Shanshui” Painting, Tang Dynasty, Li Zhaodao, Emperor Tang Minghuang traveled in Shu Province, Taipei National Palace Museum*
1.2.3 Color perception of intelligentsia in feudal China

At the turn of Song and Yuan dynasties, the cultural independence of the intelligentsia class gradually began to become clear separation, in particular with the royal culture. Influenced by Confucianism, Taoism and Buddhism, literary intelligentsia paintings admired profound, far, clear, virtual life spirit, and have shown the poem personality of Chinese culture. They took artistic conceptions more seriously than shape and color, pursued a simple and peaceful color feeling, and emphasized the taste of brush and ink. “Mysterious black” became the mainstream of visual art in intelligentsia class. “Conception” and “ink” became the supreme aesthetic standard of art criticism. Therefore, literary intelligentsia painters started pursue spiritual expressions and ink brushworks. Chinese ink paintings still valued using colors to express personality and interest in Yuan dynasty. Developed into Ming and Qing Dynasties, they have already lost the interesting of natural colors, abandoned realistic colors, and only pursued the very artistic conceptions.

Figure3 Literary Intelligentsia Painting, Ming Dynasty, Ba Da Shan Ren (Zhu Da), Flower On the Water
1.2.4 Folk color perceptions in China

Very different from royal and literature color styles, Chinese folk colors are bright, strong, exaggerated, adventurous and full of passion. They express natural beauty, happy life and better future. As a part of ruling class culture, royal and literature color arts were loved, admired and greatly improved by ruling classes in the past thousands of years. However, because of folk colors was deeply rooted in the broad masses of the people, closed to working people’s life, and manifested people’s yearnings for bright future, it eventually became a key component of traditional Chinese color culture.

Due to the typical characteristics such as spontaneity, closure and stylization, folk color is obviously different from nurture developed color system. It directly connected to primitive people’s color perception. Its performance form appeared a vivid, plain, rough and simple visual effect. This is the most valuable thing in folk color’s life. No matter before or after the folk color system formed, five-elements theory has always kept a close relationship to the folk colors along the development of different folk arts. Folk color system is the continuation of the five-color theory. For instance, cyan, red, black, white and yellow were only allowed be used on formal dress, emphasized a feeling of solemnity, steadily and simplicity. To the contrary, the utilization in folk paintings went on another way of vitality. Strong contrast colors like red and green, yellow and blue are usually used together to creative a lively color tone.

Chinese folk color system has followed the symbolic consciousness of the five-color for thousands years and have not changed until western spectrum color theory was introduced into China in modern times. This is rarely happened in the history of color theory development of the world. However, just because of this stability, Chinese folk went into a conservative pattern. Deviating from the mainstream culture and uncaring
situation depressed the exploration of higher spiritual level. The understanding and utilization of folk color took objective experience instead of subjective feeling, and somehow greatly hindered folk color’s personalized development.

![Figure 4: Folk Painting Foshan Woodblock Chinese New Year Painting](image)

*Figure 4: Folk Painting Foshan Woodblock Chinese New Year Painting
Two Marriage Numens*

Section 2 Traditional Chinese color esthetic thoughts and its influential theories

Way back during the period of slavery transferred to feudalism, the contentions among schools and the wars between the governors has completely broken the isolated condition of Chinese slave society. With the awakening of color consciousness, Chinese color form began to trend the consciously spiritual domain. Therefore, original natural symbolic colors turned into higher-level
spiritual symbolic colors. The scholars before Qin Dynasty all had some development in their own color research orientation. Among all these school of thoughts, the Confucianism represented by Confucius, the Taoism represented by Lao-Tzu and Chuang-Tzu and the Buddhism introduced during Han dynasty have most deeply influenced Chinese color culture.\textsuperscript{10}

Confucianism, Taoism and Buddhism lead traditional Chinese color esthetic thoughts into different orientations. In such an environment, traditional Chinese ink painting, royal decorative arts and folk arts has been written into traditional Chinese color history with their own individual spirit mark.

2.1 Confucian color theory

Confucian color theory combined the five-color with their opinion “Virtue”, “Benevolence” and “Kindness”, in order to specify the color system in etiquette.

Confucian color theory fiercely guarded ancient color rules and regulations, emphasized the opinion of virtue and morality. Confucian color theory was greatly influenced by the five-color conception. It defined the five colors as orthodox color, other colors as unorthodox color, and brought them specific symbolic meaning such as noble and humble. This relationship of contrast just represented the ruling and ruled relationship between “emperor” and “citizen”. As the color researcher Mr. Li Guangyuan said, “Confucianism not just gave colors social moral meaning, but also admired colors’ aesthetic value.”\textsuperscript{11}

In Confucian regulations, as the outer decorative form, colors must tightly combine with inner content, must meet the needs of spiritual and moral standards. For instance, colors represent their specific meaning in traditional Chinese opera masks makeup. Red means loyalty and braveness;

\textsuperscript{10} Jin Yuan, The research of traditional Chinese color applied in modern design, Jiangxi Normal University Journal, 2009
\textsuperscript{11} Guangyuan Li / Fuxing Deng, “Color Art”, Heilongjiang Fine Arts Press, 1994
yellow means toughness and fierceness, black means integrity and selfless, and white means cattiness and cunning. Form the view of Confucian color theory, colors are beautiful because color decorations suggested the goodness and implied the noble personality of human beings.

![Figure5 Color meanings in traditional opera makeups](image)

*Figure5 Color meanings in traditional opera makeups*

*Example of Confucians color perception*

2.2 Taoism’s colorless world

Taoism advocated colors should be initiative and primary. Taoism’s color perception is a conscious concept with negative meanings. Exploring selves in colorlessness and opposing multicolor with black color are the performance of Taoism’s original color protection. It admired the returning to the natural state. Influenced by Taoism, black always was considered a symbolic color with oriental religious characteristic. It also demonstrated the negative attitude of Taoism’s color theory. The negative side has deeply influenced the exploring of color culture in China.

Taoism believes that once white brings every color and morality brings everything. The “white” here means colorless and formless, it has distinguish idea from the “white” of the five-color system. The former represents nihility and the later is the appearance of color.
Taoism pursued a life of “inaction”, simplicity and tranquility. This belief reflected on art is the pursuing of colorless beauty. Chuang-Tzu believed colors are dazzling and blocked the truth of the matter. Taoism advocated nature, opposed ornament, and admired a plain and neat beauty.

On the other hand, Taoism advocated metaphysics and admired black color, believed that black could outmatch any other colors. The great metaphysical work “I Ching” (the Book of Changes) defined sky color as dark black and the earth color as yellow. Black is the color of gloom, the heavenly color beyond life and death. Therefore black became the head of colors and the symbolic color of Taoism. This worship of black and white has deeply affected the subsequent literary and intelligentsia color aesthetic.

*Figure 6 Liu Haishuo, Monochrome Landscape Painting
Example of Taoist color perception*

2.3 The color Zen of Buddhism

The diversified development allowed the five-color based traditional Chinese color to merge with Buddhist color from India during the Han dynasty. The Buddhist doctrine believes that colors have comprehensive material and spiritual connotation. Color is the summation of the sensory
capacity and sensory objects. Buddhist color style is full of vivid contrast and symbolic significance.

White represents the virtuousness and luminosity of Buddha’s heart. In Buddhist paintings Bodhisattva’s clothes usually expressed by white color. That is because of Buddhist color theory emphasized the factor of lights. Buddhist arts use white lights to arouse people’s visual sensory stimulation, offer a color feeling full of lights. For the same reason, gold usually be used on Temple’s decorative murals and Buddha’s statues in order to build a bright atmosphere.

During Wei and Jin Dynasties, with the growing popularity of Buddhism, the ruling classes gradually took Buddhism as political tools to consolidate their power. Buddhist arts and culture have been promoted in the whole realm, and seriously influenced the royal art aesthetic.

![Figure 7 Yuan Dynasty, Buddha of Medicine Bhaishajyaguru (part)](http://zh.wikipedia.org/wiki/%E6%B1%89%E4%BC%A0%E6%95%99)

*Example of Buddhist color perception*

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12 Chinese Buddhism (Chinese): http://zh.wikipedia.org/wiki/%E6%B1%89%E4%BC%A0%E4%BD%9B%E6%95%99
Section 3 Conclusion

This chapter stated the development and categories of traditional Chinese color perceptions and how different thoughts affected these perceptions in different times. As I said in chapter I, the returning of traditional colors are becoming trend in today’s China. Therefore, in order to make better design in today, the study of traditional art and colors in the past is necessary and important. It could help us better understand the internal relation of traditional and modern aesthetic, and pick out the most emotional and efficient part to apply in today’s design.

We already realized that traditional color perceptions admire the implied meaning and symbolism, and express cultural content, personal emotion and social hierarchy in every form of art. Traditional Chinese art are not just satisfying the visuals needs, but also the spirit needs. Different arts have their own meanings and positions, and colors helped to represent these different status. This will be a very supportive point when I talk about the porcelain color styles in chapter IV.
CHAPTER III

PORCELAIN COLOR RESEARCH

Section 1 Porcelain Color history in China

Culture cannot be a single form, the same as porcelain. Science, literature, aesthetics, philosophy even metaphysics added on the glaze, makes it colorful and vivid. Although the first mature porcelain appeared around 1800 years ago, porcelain making has already lasted for 5000 years and served the needs and satisfied the aesthetic tastes of Chinese society.

1.1 The differences between porcelain and ceramic

Before the beginning of porcelain color research, we need to know what is porcelain? What is the difference between porcelain and ceramic?

There are three main points:

1) The composition of mud embryo:

   Ceramic embryo is clay, which has high iron content; porcelain embryo is china clay, which has low iron content.

2) The firing temperature:

   The firing temperature of ceramic is usually only around 500°C, while porcelain is usually over 1000°C.
3) The glaze:

Ceramic doesn’t have glaze, or sometimes low-temperature glaze; porcelain always has beautiful and delicate high-temperature glaze.

In these three points above, the firing temperature is the decisive factor during porcelain production process. The higher temperature guaranteed the lower water absorption. Then the less chance to appear cracking or leaking of glaze, the color also will be more beautiful.

On the other hand, the composition of mud embryo decided the heat resistance of porcelain. The top representative kiln Jingdezhen has already started use china stone and Kaolin clay during Yuan Dynasty. The special shape of its kiln also let the firing temperature achieved 1300˚C. Therefore, Jingdezhen porcelains are all high-temperature hard porcelain with leading technology.

1.2 The time line

Neolithic Ceramics, 6000-1000 B.C.

Bronze Age Ceramics, 1766-211 B.C.

Han Dynasty Ceramics, 206 B.C. – A.D. 220

Tang Ceramics, 618 – 906

The Beginning of Porcelain, Tang Dynasty, 9th century
1.2.1 Before Han dynasty

China was the birthplace of porcelain making. Archaeologists consider the Gaolin glaze ware unearthed from Shang Dynasty in Zhengzhou, Henan, China as the world’s earliest known porcelain. In Eastern Han Dynasty, it achieved a more mature celadon production.

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13 Porcelain: http://en.wikipedia.org/wiki/Porcelain
method. Over the following Tang and Song Dynasties, variety of new ceramic technologies and styles were developed. Until Ming and Qing Dynasties, porcelain already became a flourishing industry. Chinese ceramics processed a long way from pottery to porcelain, rough to fine, monochrome to multicolor.

According to archaeological data, first mature porcelain appeared in Eastern Han Dynasty, about 1800 years ago. Southern Chinese porcelain of Three Kingdoms, Western and Eastern Jin, Southern and Northern Dynasties has been tremendously developed. From Jiangxi, Zhejiang, Fujian, Jiangsu Provinces in southeastern coastal areas of China, to Hunan, Hubei, Sichuan provinces along the upper reaches of the Yangtze River in Middle Western part of China, kilns have been gradually established, and produced countless porcelains with local characteristics. Although northern Chinese porcelain developed a little slower than southern, celadon kilns still be found in the north part of China such as Shandong, Hebei Provinces. Chinese character “瓷” (means porcelain) has first appeared in book <Jin Shu> from Jin Dynasty. At the same time, poetries for praising porcelain have been created.

1.2.2 Sui and Tang Dynasties

Porcelain of Sui, Tang and Five Dynasties showed initial prosperity. Tang Dynasty not only had numerous kilns, also started to name kilns by place name. At least ten kilns, like Yue, Dingzhou, Wuzhou, Yuezhou, Shouzhou, Hongzhou and Xing, have been recorded in the book <Tea> of Luyu, Northern porcelain has became famous by the white porcelain from Xing kiln. Northern kilns also produced celadon, yellow, black and colorful porcelain. Southern kiln Changsha has invited the “color under glaze” method; it is a very important contribution to Chinese porcelain.
1.2.3 Song and Yuan Dynasties

Song and Yuan Dynasties is the golden age of Chinese porcelain. It achieved unprecedented success during this time. Porcelains from the world-famous six kilns Chai, Ru, Guan, Jun, Ge and Ding have been considered as rare treasures by future generations. Besides, kilns like Yaozhou, Cizhou, Longquan, Jian, Jizhou and Jingdezhen also achieved the leading position at their local area. At this time, Chinese porcelain has reached the first historical peak.

1.2.4 Ming and Qing Dynasties

During the Ming and Qing Dynasties, Jingdezhen Kiln collected the essential technics from kilns all over the nation, became the center of porcelain industry in China. During this time, porcelain industry has diversified into variety of development. Imitation of antiques, creation of new forms, these developments achieved an unbeatable historical peak. Porcelain products only met the needs of domestic and foreign markets, but also assumed responsibility for royal products. Therefore, Jingdezhen became the world famous porcelain city.

1.3 The distribution of important kilns
1.3.1 Yue Kiln

Yue is the oldest kiln in China, started during Eastern Han Dynasty, developed speedily during Three Kingdoms, Eastern and Western Jin, Southern and Northern Dynasties. Yue kilns were found in eastern coastal areas of China like Shaoxing, Shangyu, Yuyao, Ningbo, Fenghua, Linhai, Leishan, Yuhan, Huzhou. To the Tang Dynasty, Yue porcelain’s shape style started to produce multi shape forms, such as multi-row shape, bionic shape, lotus shape and so on, instead of round shape. The decoration style was known by delicate glaze color. Yue glaze color has uniform thickness, looks like ice or jade, was called “secret color”. From Tang Dynasty, Yue became the special kiln only produce royal products, its glaze recipes and firing technology was a royal secret. That is why Yue porcelains were called secret color porcelain.

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1.3.2 Chai Kiln

Chai Kiln was established by Emperor Chai Rong (Zhou Shizong) of Later Zhou Dynasty. The capital of Later Zhou Dynasty is Bianjing, now Zhengzhou in Henan province. The earth there are very suitable for porcelain. Chai porcelains were described as “Blue like the sky, Bright like mirror, thin like paper, sound like Qing (a musical stone)”, the top porcelains at that time.

http://www.bonsaiinformation.com/Potsforbonsai/PotNotes.htm
1.3.3 Ru Kiln

Ru Kiln was named by Ruzhou, Henan. Ru kiln lasted a very short time. Its products are less than one hundred all over the world. Ru porcelains were known by its special “incense ash embryo”. Ru glaze color was described as “look like egg and suet, fine looming cracking”. Its embryo is very thin, while the glaze is thick, appeared a feeling of jade. Ru porcelain are also famous by “Sky blue”. Different from sky blue of Chai Kiln, this blue was described as” The first blue in the sky after rain”. Ru Kilns established in Northern Song Dynasty, gradually developed as a royal kiln, disappeared in Ming Dynasty, lasted around 300 years.

![Figure11 Song Dynasty Ru Kiln Sky Blue Round Washing Plate](http://www.chinese-tea-culture.com/ru-kiln.html)

1.3.4 Guan Kiln

“Guan” means government, so Guan Kiln were the special kilns for royal family. Guan embryos mostly were black-grey, dark-grey or black-brown. However, their glaze is famous with celadon. Especially pink celadon and light celadon. Guan glaze is not very bright, emulsion-like, cracking is bigger than others. This kind of cracking is a significant feature of Guan porcelain, called “ice crack” or “rotating crack”. Glaze sometimes is thicker than embryo; it is because of multi-time glazing.
1.3.5 Ge Kiln

Longquan is one of Chinese oldest center of porcelain, has a very long history. During the Southern Song Dynasty, There were two brothers named Zhang Shengyi and Zhang Shenger. They both established their kilns at Longquan. The kiln of Zhang Shengyi was named Liutian, also named Ge (means older brother); the kiln of Zhang Shengrt was named Longquan, also named Di (means younger brother). Ge celadon is similar to Guan, has dark embryo, light and pink blue, thick glaze and bigger crack. However, Ge Kiln has another unique treasure named “Gold and iron wire”. This kind of porcelain mostly have fried rice yellow, sometimes grey-green. Their special crack is alternate black (iron) and yellow (gold).

Figure12 Song Dynasty Guan Kiln Pink Celadon Square Pot

Figure13 Southern Song Ge Kiln Rice Yellow Rotating Crack Bottle

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17 Longquan Celadon: http://en.wikipedia.org/wiki/Longquan_celadon
1.4 The naming of porcelain

To study the Chinese porcelain color development, we should start with how to name porcelain. The rule of porcelain naming is just simply, directly describe the features of it. Generally it divided into four parts:

1) Dynasty (Han, Song, Yuan, Ming…) + reign tile (Yongle, Chenghua, Kangxi…)

2) Kiln (Ge, Ru, Guan…) or place (Jingdezhen, Longchuan…)

3) Glazing color (Celadon, sweet white, sky blue…) + Pattern method (Blue and white painting, outline in gold, color brush…) + Pattern content (water pollution, dragon, flower and bird…) + special technology

4) Ware form: shape (Garlic opening, volume opening, tri-legs) + type (plate, bottle, bowl…)

For example, the name of the plate below is Qing Kangxi Jingdezhen Guan Kiln Blue and White Painting Jade Dragon Folded Edge Washing Plate.

Figure 14 Qing Kangxi Jingdezhen Guan Kiln Blue and White Painting Jade Dragon Folded Edge Washing Plate

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The naming of porcelain: http://art.taocang.com/art/chinamarket/52591.htm
Qing is the dynasty, Kangxi is the reign tile of the emperor, Jingdezhan Guan Kiln is the place, Blue and white painting is the pattern method, jade dragon is the content on this porcelain, folded edge is the feature of its shape, and plate is its form type.

The four rules of naming are just the four important factors of porcelain. They represent the whole technical development of Chinese porcelain.

Section 2 Porcelain Color Developments

According to the cultural aesthetic, technology development and the influence of the primitive five-color perception, monochrome porcelain has been generally divided into seven colors: white, black, celadon, yellow, green, red and blue.

2.1 White Porcelain

In the history of porcelain, no matter how many colors were made in porcelain development, white is absolutely the earliest goal of porcelain color. People pursued this goal for at least a thousand years. In Beiqi(550–577), ancients first made white pottery. In today's perspective, this kind of "white" pottery is not quite white, even mixed with cyan. However, this "white" started the history of white pottery and allowed offspring can have space to further explore it.

The earliest white porcelain was refined from celadon. Based on thousands of years of celadon production, artisan discovered the skills of making white porcelain. Both white porcelain and celadon are in the same system. Eliminating the cyan color from celadon porcelain made the pure
2.1.1 Tang Dynasty, Xing Kiln

White porcelain in Tang dynasty is whiter than any other dynasty's. This is the affirmation that white is the basic color of porcelain.

2.1.2 Song Dynasty, Ding Kiln

Ding kiln is bright. In the end of Beisong Dynasty, people liked celadon but not white porcelain. But Ding Kiln has already been popular for more than a hundred years. Hundreds of porcelain made by Ding kiln was dig out from Jingzhi temple, which shows the sincere attitudes of Buddhism to white porcelain.

2.1.3 Jin Dynasty, Ding Kiln

Although there was consistent war in Jin Dynasty, the development of white porcelain of Northern Ding kiln never stopped. Especially, the punching flowers technique enhanced the production making handicraft civilization show the clue of industry civilization.

2.1.4 Yuan Dynasty, Shufu Kiln

It is not by chance that people of Yuan dynasty adored white porcelain: nomads like blue sky and white cloud. You can find clues that white represents luck everywhere in Yuan people's lives. The emperor rode white horse, wore white clothes, live in white house; in religion ceremony, there is white canopy beside the throne. White become the first choice of palace.

2.1.5 Ming dynasty, Yongle sweet white

The Yongle white porcelain is famous for its "sweet sugar" feeling. It seems people in
Yongle paid such a big amount of effort to make white porcelain is because of the suggestion of the emperor. The progress of Yongle white porcelain was obvious and ancients often appreciated it in books. To make white porcelain, people need to subtract every impure color. People in Yongle made white porcelain by adding glaze to the white Kaolin to make porcelain white from inside.

2.1.6 Ming Dynasty, Dehua white porcelain

Dehua white porcelain is unique in the history. First, it has the best transmittance. Second, it has the best plasticity that allows to be made to any shape. People would be fascinated when they see Dehua Porcelain for it can use fragile porcelain to represent the smooth clothes; can use cold porcelain to represent the the moist of skin. Dehua white porcelain is fantastic and no later porcelain can compete with it.

Ancients observed white in nature, like white cloud, white snow, white flowers, and use them to make the standard of white. This color comes from nature and ancients endeavor to explore it when they were not sure if they can succeed.

2.2 Black Porcelain

Black porcelain is mysterious. 

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19 Porcelain photos taken from “Color of Porcelain”, “Monochrome Ware” and “Color Glazed Porcelain of the Ming and Qing Dynasties” and assembled
thousand years ago. Comparing to blue porcelain, black porcelain lack the direct attraction to people for black is dark and has no expression. In fact, black is not a color but the end of all the colors. Black porcelain was born in Shangyu, Ningbo, Shaoxing and Yongjia areas of Zhejiang province. Black porcelain appeared in such a intent area probably for there is high iron content in the earth of that area. Ancients without high skills gradually developed the aesthetics standard of black porcelain.

2.2.1 Jin Dynasty, Deqing Kiln

Regarding the history of black porcelain, the best is Deqing black porcelain whose surface looks like paint, bright and moderate like lacquer ware. The pursuing of great quality is the reason why black porcelain can be enduring.

2.2.2 Tang Dynasty

It is difficult to distinguish the provenance of black porcelain in north China for the difference is slightly and subtle, some can even be ignored. Black porcelain from Henan area is pretty and there is a white line on the mouth of the bottles, which makes the black color more obvious.

2.2.3 Song Dynasty

Black porcelain of Song Dynasty was founded in all over China. It is reasonable that black porcelain can be popular in this time with all different cultures. There was a record of producing black porcelain in Cizhou, Yaozhou, and Ding in northern China. It is possible that northern artisan moved to southern China and brought the aesthetic of black porcelain. The result was the black porcelain produced by Jizhou of southern China.

2.2.4 Song Dynasty, Jianzhan
Jianzhan (a special shape type of tea bowl) is the best black porcelain of Song dynasty. The shape of Jianzhan is unique. But it is famous for the improvement of tea culture in Song. Tea culture in Song promoted much more simple process, which provide the background of the birth of Jianzhan. Jianzhan is based on black, and all the other colors came from black. In fact, because there was a lot iron in black porcelain. So the colors were easily changes in high temperature, and these changes were summarized by artisans and became treasure of the country.

2.2.5 Liao Dynasty
People in Liao Dynasty did not like black for nomads adore blue sky, white cloud and yellow ground. But they respected black. Yelu Yu, the prime minister of Liao used a lot of porcelain to be buried together with him. People can see the influence of Han culture to the minority culture.

2.2.6 Qing Dynasty, Kangxi Black and Gold porcelain
The quality of the Black and Gold porcelain of Qing dynasty went to a unprecedented high level that people cannot just use "black as paint" to describe it. The black of the porcelain is profound, clean, and superb.

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20 Porcelain photos taken from “Color of Porcelain”, “Monochrome Ware” and “Color Glazed Porcelain of the Ming and Qing Dynasties” and assembled
Black porcelain has not been popular for two thousand years in China. Back to Longshan and Liangchu civilization, which existed two thousand years ago, pursued to specifically make black porcelain. From Donghan, black porcelain gradually become part of porcelain civilization and become indispensable for it enriched the color of porcelain.

2.3 Celadon

Celadon porcelain is the biggest family of porcelain, with a long history. It has the public aesthetics from beginning. Celadon is nature color that pleasing to the eye, without affectation, and exists everywhere. Celadon represents the vitality of nature and life.

2.3.1 Primitive Celadon

The original celadon can hardly be called celadon for many of them have a large part of brown and looks dark. From Western Zhou dynasty to Zhanguo period, instead of being daily articles, celadon porcelain was also an important part of funeral ceremony. Many of them were used to imitate bronze. It played an essential role in the end part of slavery society. Celadon porcelain promotes the civilization progress by popularizing the high-end product.

2.3.2 Han Dynasty, Yue Kiln

Yueyao began from Sanguo, and when came to Xijin, it had become boutique.

2.3.3 Sui Dynasty

Sui celadon glaze normally only have half glaze which was not because of rough production skills, but the fashion trend of that time.

2.3.4 Tang Dynasty, Yue kiln’s secret color
In Tang Dynasty, celadon porcelain was popular and eventually became secret color porcelain. Luyu, "The Lord of Tea" thought it is treasure and said Yueyao looks like jade, like ice and the celadon of it looks like the color of tea. This kind of appreciation was rare in the history of porcelain.

2.3.4 Ming Dynasty, Chai Kiln
Since the beginning of Ming dynasty, Chai Kiln has been appreciated by porcelain scholar and collector. They thought this porcelain's color looks like the blue color of the sky after raining.

2.3.5 Song Dynasty, Yaozhou Kiln
Yaozhou celadon porcelain was the most beautiful porcelain that people had ever seen at that time, before the birth of the beautiful Song porcelain. The classical impression of Yaozhou porcelain is the large part of dark green. The color of the celadon porcelain in Beisong is the most stable and peaceful, which represent the characteristic of people from north China.

2.3.6 Longquan Kiln
Because of the difference of regions and cultures, the colors porcelain of Longquan Kiln changed obviously from Beisong to Nansong. Plum porcelain even abandoned the traditional technologies of Longquan porcelain, and gradually became fashion of that time. When it came to Yuan dynasty, the celadon of Longquan went further and further from literati. People of Yuan dynasty adore white and blue, and celadon became supporting role. In this period, some special shapes came out: Daji bottle, Gourd bottle, which were full of the spirit of Taoism. The color of celadon porcelain was the lucky color of Taoism, simple and peaceful.
2.3.7 Ming Dynasty, Longquan Kiln

Within Song and Yuan Dynasty, celadon porcelain took the first position for hundreds of years, either in palace or around common people. So it is seldom to avoid aesthetic fatigue. During two hundred years of Ming dynasty, besides the early days, you can hardly find the trace of porcelain.

2.3.8 Qing Dynasty

Celadon porcelain in Qing Dynasty can be categorized to three levels, bean celadon, east celadon and powder celadon. Powder celadon gave implicit beauty to celadon and became the last member of the family of celadon porcelain.

![Figure 17: The development of Celadon](image)

Chinese ancients unconsciously upgrade colors to art. They noticed that porcelain not only has functions, but also has aesthetic value. The soul of celadon porcelain came from nature.

2.4 Yellow Porcelain

Yellow porcelain represents a rich content to Chinese ancients. First, it means the motherland. It also means lucky and wealthy, and eventually become the dedicated color of imperial family, civilian must not use it. Royal court used yellow porcelain to educate its people what is hierarchy and what is grandeur.

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21 Porcelain photos taken from “Color of Porcelain”, “Monochrome Ware” and “Color Glazed Porcelain of the Ming and Qing Dynasties” and assembled
2.4.1 Han and Jin Dynasty
Lead glaze of Han dynasty contained iron and appears yellow. This kind of yellow is not pure because it contained brown and reddish brown. However, this yellow glaze with variegated color, opened the door of glaze decoration.

2.4.2 Sui and Tang Dynasty
Glaze of Sui and Tang has two categories and the low temperature category is mainly about three colors. The color trend of south and north China eventually mixed together.

2.4.3 Liao Dynasty
The reason of the popularity of Liao yellow porcelain is partly because of the popularity of golden appliance. People in Liao lived by fishing and hunting, and like using golden appliance in daily life, and golden eventually became the symbol of their spirit.

2.4.4 Song Dynasty
From Song dynasty, porcelain was controlled by two kinds of people, royal family and citizen. Yellow porcelain in Song is sporadic, like small trees on the cliff: hard to grow up and hard to die. In Yuan Dynasty, the lord did not like yellow porcelain and the retreat of yellow porcelain may predict the coming of revolution.

2.4.5 Ming Dynasty
From Ming dynasty, since yellow became the royal standard color, yellow porcelain became the royal porcelain can only be made for the palace. "Yellow" means "Royal" which emphasized the hierarchy. From that time, even the dynasty changed, yellow porcelain still represented dignity of palace.
2.4.6 Qing Dynasty

Yellow porcelain broke the restriction of palace and became vivid. The lotus plates did not follow the standard of royal porcelain any more, and achieved more value of art.

Modern people see yellow porcelain as artwork while ancients saw them as the dignity of palace. This makes yellow porcelain no longer the container, but the spirit symbol.

2.5 Green Porcelain

Green porcelain is different with celadon porcelain for green is an objective color but porcelain is a subjective color. Green porcelain is used to represent objective objects, but not subjective objects. Green porcelain is lower firing temperature porcelain, without high adhesion between porcelain and body, which makes green porcelain hover outside the porcelain main stream.

2.5.1 Han Dynasty

Green porcelain of Han dynasty used to be dominant porcelain color for hundreds of years. It was different from the white porcelain and celadon porcelain. The saturation of green porcelain was high, and this feature made it popular all over China.

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Porcelain photos taken from “Color of Porcelain”, “Monochrome Ware” and “Color Glazed Porcelain of the Ming and Qing Dynasties” and assembled
2.5.2 Tang Dynasty
Green porcelain of Tang dynasty is the major color of "Tangsancai". It is seldom to see the pure green in sculpture of "Tangsancai". Although there was totally green porcelain in container, it is seldom to see them.

2.5.3 Liao Dynasty
Green porcelain in Liao dynasty was mainly about water containers, which represented that people of Qidan lived by water. It was the intuitive nature for people lived in grassland like green. The green water potter porcelain provided the truth that Liao Dynasty is part of the Chinese culture.

2.5.4 Song Dynasty, gold green porcelain
Green porcelain of Song dynasty inherited the feature of the porcelain of Tang and Liao dynasty. Green porcelain of Han and Tang often used grave goods while Song green porcelain became commodities in people's daily lives.

2.5.5 Yuan and Ming Dynasties, peacock green porcelain
Sometime people call peacock green "peacock blue". In today's perspective, peacock green looks more like blue but not green. Peacock green was not a common color and it was unique in Chinese porcelain history. Because western people liked peacock green, lots of peacock porcelain were made to be sold oversea, and today more of them remained in western world.

2.5.6 Qing Dynasty
From the mid term of Qing dynasty, the texture of Lanyao green porcelain became simpler with glass. For Lanyao red porcelain became more and more famous, people
ignored Langyao green porcelain.

![Figure19 The development of Green Porcelain](image)

The color of green porcelain is objective. People prefer subjective porcelain, like celadon porcelain, which made green porcelain a common role of porcelain while celadon porcelain the most popular porcelain. Green is objective, low temperature, beautiful while celadon is subjective, high temperature, functional, which illustrates that the two sides of human's civilization from philosophical, technical and aesthetic perspectives.

2.6 Red Porcelain

Red porcelain represented a deep social meaning for it is not only the homage of life's original color, but also the representation of the original color of Chinese culture.

2.6.1 Neolithic ceramic

Back to ancient time, red had the multiple meaning of human civilization, including art. In Neolithic time we can find artificial red. Colorful pottery was strong and conveys the sound from ancients' heart.

2.6.2 Qin and Han Dynasties

Most of pottery of Qin Han dynasty used to describing people's lives, but not for

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23 Porcelain photos taken from “Color of Porcelain”, “Monochrome Ware” and “Color Glazed Porcelain of the Ming and Qing Dynasties” and assembled
ceremony. Red figurines are the spreading of the awareness of red in Han.

2.6.3 Tang Dynasty
To ancients, making red glaze onto porcelain was very difficult for the condition for making red glaze was harsh, and red glaze often made by chance which means people seldom have chance to summarize how to make it. Changsha kiln was the only place that can produce red porcelain. Changsha kiln was important for it can prove the appearance of red porcelain hundreds of years earlier.

2.6.4 Song Dynasty
Rose purple (or say rose red) made in Jun kiln of Beisong was the first appearance of red porcelain, and the color of it was bright. This red porcelain was not only the revolution of science, but also improvement of aesthetics and sociology.

2.6.5 Yuan Dynasty
People in Yuan dynasty adored red and thought red represented warm, and it was the metaphor of fire and sun. The significance of the appearance of sheer high quality red porcelain was important. After that, red porcelain appeared.

2.6.6 Ming Dynasty
The color of Ying red porcelain looks like the color of blood. Yongle red porcelain end the history of dark red, and made people value red porcelain.

2.6.7 Qing Dynasty
Red porcelain in Qing can be categorized into: Lang kiln red, cowpea red, coral red, rouge red, Yao red, golden red, magenta red, rose red. The beginning of Qing was the
golden age of red porcelain.

Realizing red porcelain was the most difficult technique of porcelain production, Chinese artisan used a thousand years to pursue making it and finally they succeeded.

2.7 Blue Porcelain

Blue porcelain was not a lucky color in ancients' eyes, sometimes even a little scary. In Chinese porcelain history, blue porcelain appeared as the last one and there is no blue porcelain before Tang Dynasty. The appearance of blue porcelain could be related to the liberation of mind. The characteristic of Tang is assertive and open minded, and made blue porcelain famous but not take the key position.

2.7.1 Tang Dynasty

Tang blue porcelain already in the same level of the blue porcelain made in Yuan. It was the real blue porcelain, with high saturation, full of imagination, and different from any porcelain color before. The description of blue “after raining” is more like a sense than an exactly color. Blue porcelain was obviously not the pursuing of traditional culture.

2.7.2 Song Dynasty, shadow blue porcelain

Porcelain photos taken from “Color of Porcelain”, “Monochrome Ware” and “Color Glazed Porcelain of the Ming and Qing Dynasties” and assembled

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24 Porcelain photos taken from “Color of Porcelain”, “Monochrome Ware” and “Color Glazed Porcelain of the Ming and Qing Dynasties” and assembled
Shadow blue porcelain was invented in Song, which looks similar to blue porcelain but technically was white porcelain. Then is peacock blue.

2.7.3 Yuan Dynasty

Blue porcelain in Yuan was innovative. The ruler of Yuan adored blue, which was also part of Islam culture. Blue porcelain's color was stable and implicit; making it was difficult to be appreciated. The most famous one is the white dragon blue bottle.

2.7.4 Ming Dynasty

Sprinkle blue porcelain was born in Ming. Sprinkle blue is the blue with mottled visual effects and this affects only restricted in blue porcelain. Some times people also called it "snow blue".

2.7.5 Qing Dynasty

Blue porcelain began to be categorized by the depth of the color and the dark blue one was used for ceremony. The light blue one was a new product.

Figure 21 The development of Blue Porcelain

Obviously the appearance of blue porcelain was caused by a foreign power. Western people brought beautiful sound and rich colors. Chinese people were interested in both familiar color and unfamiliar color, which was the porcelain history colorful.

Porcelain photos taken from “Color of Porcelain”, “Monochrome Ware” and “Color Glazed Porcelain of the Ming and Qing Dynasties” and assembled
In this chapter I demonstrated the general history of porcelain and the porcelain color development in China.

Affected by the geographic environment, the technical limitation, the government policy and cultural exchanging, the develop path of every color is unique. This gives us a better understanding of porcelain colors and helps me to choose my focus while I am making the color guide in chapter IV.

Porcelain colors, like other colors used in different art, are the reflection of the time. They represented the aesthetic, the thoughts and the social situation of the time. This give us a better sense to choose right color while we are using porcelain color in today’s design.
CHAPTER IV

PORCELAIN COLO GUIDE AND APPLICATION PRINCIPLES

Section 1 Porcelain Color Guide

1.1 The instructive significance of porcelain color guide

At present there are thousands of papers and books about color design and color schemes. However most of them are focusing on western color research. Therefore, taking Chinese porcelain art as the breakthrough point to study traditional Chinese color, and building up a color guide based on porcelain color would be a significant study. It not only found out and inherited the color artistic value of excellent traditional art, but also built up a practical and functional color guide that could be used in modern color design. The visualization of profound culture and rich connotations also could arouse the designers and general public’s attention and understanding.

1.2 Refine key colors from porcelain

Because of the huge amount of extant porcelain and relative picture information, I firstly screened all the collection of pictures and their relative information, picked out representative samples that divided by periods. Then refine key colors from these collection.
Figure 22 Picture information source: printed matters and books

Porcelain photos taken from “Color of Porcelain”, “Monochrome Ware” and “Color Glazed Porcelain of the Ming and Qing Dynasties” and assembled
Porcelain photos taken from various web and assembled

Figure 23 Picture information source: websites

---

27 Porcelain photos taken from various web and assembled
From the figure above, I found out that colors from websites are more changeable and unstable. There is no certain tendentiousness in each color section. On the contrary, print color is more consistent and stable. In order to find out the reason and make the refined colors more accurately, I analyzed the picture source from different media.

From the above figures we can clearly see the steps before a print color shown on computer screen: take pictures, manage them in computer, send to print, scan it back in computer. But we
almost can not exactly know how many times a picture has be reposted on websites and how its color distorted during the processes, that is why website color appears more irregularly.

On the other hand, printed picture from books are mostly shot in a similar, stable and predetermined shooting environment. Pictures will get more comparing values if the light, temperature and shooting equipment are under the same situation. Therefore, I decided use book pictures from the same serious as my source to refine the key porcelain colors.

1.3 The law of the development of porcelain colors

\[\text{Figure 27 Low Saturation to High Saturation Along the Time Line}\]

As the figure shows, porcelain colors have slowly, gradually changed from low saturated to high saturated along with the development of the time. This movement has tight connections with the porcelain technology development.
The original porcelain appeared in Shang dynasty. In fact the first porcelain is more like a pottery, but has some similar compositions like porcelain. The raw materials most usually used at this time are quartz, feldspar, borax and clay. Because of the impurities in glaze and the low firing temperature, the glaze colors at this time are not very stable yet. The using of iron started in Spring and Autumn Period. Additionally firing temperature achieved at 2200°F. These two factors make porcelain color appeared with a greenish shiny surface. Entering Eastern Han dynasty, people began to use a special kiln called Long kiln to produce porcelain. Long Kiln’s specific structure allowed the firing temperature arrived 2350°F. A raw material similar to Kaolin Clay has been used at this time. The technology has been close to maturity. At the end of Eastern Han dynasty, the special porcelain raw material Kaolin clay has already been broadly used. Compared to the former materials, Kaolin clay has obviously advantages such like low iron content and low water absorption. The firing temperature got higher, to 2400°F. This represents the maturity of the technology and the capability to firing glaze colors without technical limitations.

The technical limitations and using of raw materials caused the instability of porcelain colors before Eastern Han Dynasty. For instance, the low firing temperatures limited the technique of glazing, made the surface easily oxidized and discolored; and the high content of iron in raw material made the porcelain color greenish. As a result, people could not control porcelain colors according to their own wills before Eastern Han Dynasty. That is to say, these colors we see today, were not made according the aesthetic of that time. These colors may caused by the oxidization or raw material limitation, and somehow lost the cultural value of the time. Therefore, the mature porcelain colors without technical limitations, totally controlled according people’s will and represent the aesthetic trends of the time, were be considered have more research value. Therefore I decided to put my study emphasis on the porcelains after Eastern Han dynasty.
1.4 Porcelain Color Guide

Excluding the low saturated colors before Han Dynasty and the repeated colors in key colors, I finally build up a porcelain color guide with seven sections as below:

**White:**

- **RGB:** 255, 254, 245
  - CMYK: C1, M0, Y6, K0
  - Name: Zinc White

- **RGB:** 254, 252, 236
  - CMYK: C1, M0, Y1, K0
  - Name: Shell White

- **RGB:** 248, 244, 190
  - CMYK: C5, M0, Y35, K0
  - Name: Pale Yellowish White

- **RGB:** 242, 239, 186
  - CMYK: C8, M2, Y35, K0
  - Name: Very Pale Yellow

- **RGB:** 232, 225, 179
  - CMYK: C12, M8, Y37, K0
  - Name: Ivory

- **RGB:** 226, 213, 162
  - CMYK: C15, M13, Y43, K0
  - Name: Enamel

- **RGB:** 201, 184, 137
  - CMYK: C26, M25, Y57, K0
  - Name: Pepper

- **RGB:** 185, 189, 188
  - CMYK: C28, M20, Y22, K0
  - Name: Silver Gray

---

Figure 28 The development of porcelain technology
As the figure shows above, most white porcelain colors are located in red and yellow area with low saturation and very high brightness.

**Black:**

- **RPG:** 66, 85, 84  
  **CMYK:** C90, M65, Y76, K0  
  **Name:** Dark Green

- **RPG:** 80, 80, 56  
  **CMYK:** C63, M52, Y75, K44  
  **Name:** Vert Bronze

- **RPG:** 77, 74, 38  
  **CMYK:** C62, M52, Y88, K50  
  **Name:** Olive Green

- **RPG:** 56, 56, 42  
  **CMYK:** C68, M58, Y73, K63  
  **Name:** Very Dark Yellow Green

- **RPG:** 66, 66, 47  
  **CMYK:** C66, M55, Y75, K55  
  **Name:** Old Pine Tree

- **RPG:** 43, 51, 65  
  **CMYK:** C85, M71, Y51, K50  
  **Name:** Dark Blue

- **RPG:** 37, 57, 57  
  **CMYK:** C100, M69, Y76, K53  
  **Name:** Zaffir

- **RPG:** 47, 46, 32  
  **CMYK:** C68, M60, Y75, K71  
  **Name:** Charcoal

- **RPG:** 42, 42, 41  
  **CMYK:** C0, M0, Y0, K96  
  **Name:** Carbon

- **RPG:** 55, 80, 71  
  **CMYK:** C90, M63, Y78, K24  
  **Name:** Ivy

- **RPG:** 46, 38, 68  
  **CMYK:** C88, M87, Y41, K47  
  **Name:** Eggplant

- **RPG:** 41, 57, 38  
  **CMYK:** C77, M52, Y79, K62  
  **Name:** Black Green

- **RPG:** 27, 46, 51  
  **CMYK:** C88, M65, Y58, K61  
  **Name:** Very Dark Blue Green

- **RPG:** 28, 27, 24  
  **CMYK:** C74, M67, Y65, K82  
  **Name:** Graphite

- **RPG:** 31, 39, 48  
  **CMYK:** C87, M71, Y55, K64  
  **Name:** Dark Blue

- **RPG:** 28, 51, 73  
  **CMYK:** C95, M74, Y46, K43  
  **Name:** Dark Greenish Blue

- **RPG:** 33, 54, 62  
  **CMYK:** C100, M64, Y36, K63  
  **Name:** Dark Blue

- **RPG:** 41, 40, 29  
  **CMYK:** C69, M61, Y72, K74  
  **Name:** Very Dark Green
According to the figure shows above, the black porcelain colors have a broad range from yellow to purple. But the black porcelain colors are not truly black, most of them have very low brightness but not the lowest in color boards.

Celadon:
According to the figure above, celadon porcelain colors have a broad range from yellow to blue.

But the most important features to distinguish celadon colors from yellow, green, blue porcelain colors are the lower saturation and higher brightness.
<table>
<thead>
<tr>
<th>Name</th>
<th>RGB</th>
<th>CMYK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greenish Yellow</td>
<td>219, 200, 73</td>
<td>C16, M15, Y80, K0</td>
</tr>
<tr>
<td>Light Yellow</td>
<td>233, 207, 58</td>
<td>C13, M14, Y85, K0</td>
</tr>
<tr>
<td>Ivory</td>
<td>243, 220, 157</td>
<td>C0, M8, Y40, K0</td>
</tr>
<tr>
<td>Chick</td>
<td>240, 210, 58</td>
<td>C0, M11, Y91, K0</td>
</tr>
<tr>
<td>Add Yellow</td>
<td>242, 213, 34</td>
<td>C0, M5, Y100, K0</td>
</tr>
<tr>
<td>Lemon Yellow</td>
<td>214, 226, 80</td>
<td>C0, M0, Y80, K0</td>
</tr>
<tr>
<td>Cashmere</td>
<td>213, 186, 116</td>
<td>C20, M25, Y67, K0</td>
</tr>
<tr>
<td>Mineral Yellow</td>
<td>239, 193, 86</td>
<td>C0, M24, Y74, K0</td>
</tr>
<tr>
<td>Reddish Yellow</td>
<td>226, 169, 37</td>
<td>C12, M35, Y95, K0</td>
</tr>
<tr>
<td>Rape Blossoms</td>
<td>220, 189, 43</td>
<td>C3, M19, Y96, K0</td>
</tr>
<tr>
<td>Canary</td>
<td>220, 164, 45</td>
<td>C1, M23, Y95, K0</td>
</tr>
<tr>
<td>Gold</td>
<td>160, 141, 69</td>
<td>C40, M37, Y81, K9</td>
</tr>
<tr>
<td>Mustard Yellow</td>
<td>196, 174, 27</td>
<td>C16, M24, Y100, K0</td>
</tr>
<tr>
<td>Gold</td>
<td>167, 142, 83</td>
<td>C31, M86, Y70, K18</td>
</tr>
<tr>
<td>Dull Yellow</td>
<td>192, 170, 59</td>
<td>C30, M30, Y69, K1</td>
</tr>
<tr>
<td>Fawn</td>
<td>200, 139, 17</td>
<td>C0, M47, Y100, K6</td>
</tr>
<tr>
<td>Curry</td>
<td>176, 160, 47</td>
<td>C36, M80, Y93, K4</td>
</tr>
<tr>
<td>Curry</td>
<td>170, 143, 40</td>
<td>C11, M31, Y100, K23</td>
</tr>
<tr>
<td>Dark Greenish Yellow</td>
<td>134, 121, 66</td>
<td>C48, M42, Y80, K19</td>
</tr>
<tr>
<td>Camel</td>
<td>163, 123, 34</td>
<td>C2, M42, Y100, K31</td>
</tr>
<tr>
<td>Turmeric Yellow</td>
<td>217, 180, 57</td>
<td>C16, M26, Y91, K0</td>
</tr>
<tr>
<td>Amber</td>
<td>189, 122, 46</td>
<td>C9, M56, Y99, K0</td>
</tr>
<tr>
<td>Deep reddish Yellow</td>
<td>163, 123, 34</td>
<td>C2, M42, Y100, K31</td>
</tr>
<tr>
<td>Dark reddish Yellow</td>
<td>153, 111, 52</td>
<td>C36, M59, Y97, K2</td>
</tr>
<tr>
<td>Cafe</td>
<td>90, 66, 27</td>
<td>C51, M61, Y94, K52</td>
</tr>
<tr>
<td>Brown Gold</td>
<td>145, 80, 32</td>
<td>C0, M67, Y100, K34</td>
</tr>
<tr>
<td>Cinnamon</td>
<td>113, 62, 18</td>
<td>C39, M71, Y100, K45</td>
</tr>
</tbody>
</table>
As the figure shows above, most of the yellow porcelain colors are located in yellow and red area with a board range of saturation and brightness. The most obvious feature is that greenish yellow is rarely used in porcelain color.

Green:

- **Bean's Green** (RGB: 159, 173, 128, CMYK: C42, M16, Y54, K0)
- **Dull Grass Green** (RGB: 135, 164, 80, CMYK: C55, M13, Y86, K0)
- **Safari Green** (RGB: 149, 147, 68, CMYK: C46, M31, Y83, K7)

- **Mustard** (RGB: 173, 164, 80, CMYK: C29, M22, Y79, K0)
- **Grass Green** (RGB: 125, 157, 63, CMYK: C58, M14, Y90, K0)
- **Dull Yellow Green** (RGB: 141, 148, 71, CMYK: C50, M29, Y82, K7)

- **Parrot Green** (RGB: 100, 147, 63, CMYK: C66, M22, Y91, K5)
- **Vivid Green** (RGB: 88, 166, 76, CMYK: C59, M9, Y86, K0)
- **Pine Leaves** (RGB: 88, 117, 66, CMYK: C68, M35, Y82, K20)

- **Moss Green** (RGB: 83, 133, 63, CMYK: C71, M27, Y50, K11)
- **Olive** (RGB: 92, 109, 58, CMYK: C65, M39, Y85, K25)
- **Wrack** (RGB: 101, 105, 43, CMYK: C60, M41, Y94, K28)

- **Dull Yellowish Green** (RGB: 117, 153, 99, CMYK: C60, M24, Y71, K4)
- **Lichen** (RGB: 115, 140, 95, CMYK: C60, M31, Y69, K10)
- **Grass Green** (RGB: 120, 137, 66, CMYK: C58, M31, Y85, K11)
According to the figures above, green porcelain colors have a broad range from reddish green to bluish green, but most of them are middle saturated and bright in order to distinguished from celadon colors.
Red

<table>
<thead>
<tr>
<th>RGB:</th>
<th>CMYK:</th>
<th>Name:</th>
</tr>
</thead>
<tbody>
<tr>
<td>235, 189, 216</td>
<td>C5, M36, Y0, K0</td>
<td>Powdered Pink</td>
</tr>
<tr>
<td>195, 173, 160</td>
<td>C15, M30, Y17, K0</td>
<td>Light Green Red</td>
</tr>
<tr>
<td>235, 166, 153</td>
<td>C0, M44, Y30, K0</td>
<td>Salmon Pink</td>
</tr>
<tr>
<td>169, 105, 127</td>
<td>C21, M70, Y35, K0</td>
<td>Flesh Red</td>
</tr>
<tr>
<td>180, 80, 104</td>
<td>C26, M81, Y44, K5</td>
<td>Magenta</td>
</tr>
<tr>
<td>175, 98, 73</td>
<td>C26, M70, Y75, K9</td>
<td>Agate</td>
</tr>
<tr>
<td>197, 87, 69</td>
<td>C0, M77, Y75, K0</td>
<td>Cinnabar</td>
</tr>
<tr>
<td>166, 77, 61</td>
<td>C18, M79, Y33, K0</td>
<td>Lava Red</td>
</tr>
<tr>
<td>177, 76, 46</td>
<td>C10, M85, Y100, K0</td>
<td>Rust Red</td>
</tr>
<tr>
<td>151, 66, 38</td>
<td>C0, M77, Y100, K29</td>
<td>Brick Red</td>
</tr>
<tr>
<td>150, 48, 11</td>
<td>C12, M65, Y100, K37</td>
<td>Fresh Blood</td>
</tr>
<tr>
<td>137, 50, 19</td>
<td>C29, M85, Y100, K33</td>
<td>Burnt Almond</td>
</tr>
<tr>
<td>126, 42, 24</td>
<td>C32, M87, Y90, K43</td>
<td>Blood</td>
</tr>
<tr>
<td>152, 44, 21</td>
<td>C27, M91, Y100, K25</td>
<td>Fresh Blood</td>
</tr>
<tr>
<td>96, 54, 64</td>
<td>C0, M75, Y31, K68</td>
<td>Dark Purple</td>
</tr>
<tr>
<td>83, 40, 22</td>
<td>C42, M79, Y94, K63</td>
<td>Dark Red</td>
</tr>
<tr>
<td>103, 54, 34</td>
<td>C38, M75, Y81, K50</td>
<td>Chestnut</td>
</tr>
<tr>
<td>114, 84, 97</td>
<td>C56, M65, Y45, K23</td>
<td>Dark Grayish Purple</td>
</tr>
<tr>
<td>129, 64, 39</td>
<td>C24, M75, Y94, K36</td>
<td>Deep Yellow Red</td>
</tr>
<tr>
<td>83, 61, 88</td>
<td>C75, M92, Y56, K0</td>
<td>Aubergine</td>
</tr>
<tr>
<td>134, 67, 37</td>
<td>C33, M74, Y96, K34</td>
<td>Dull Yellow Red</td>
</tr>
<tr>
<td>116, 64, 20</td>
<td>C38, M71, Y99, K43</td>
<td>Chocolate</td>
</tr>
<tr>
<td>164, 61, 28</td>
<td>C25, M82, Y96, K19</td>
<td>Vivid Yellow Red</td>
</tr>
<tr>
<td>155, 75, 42</td>
<td>C29, M74, Y86, K23</td>
<td>Deep Yellow Red</td>
</tr>
<tr>
<td>215, 95, 20</td>
<td>C11, M72, Y96, K1</td>
<td>Fire Red</td>
</tr>
<tr>
<td>146, 73, 22</td>
<td>C0, M70, Y130, K25</td>
<td>Orange Caramel</td>
</tr>
<tr>
<td>201, 69, 39</td>
<td>C14, M67, Y100, K5</td>
<td>Nasturtium</td>
</tr>
</tbody>
</table>

**Figure 34** Hue (RGB codes), Saturation and brightness range of red porcelain color

---

**Hue:** 323 ~ 27

**Saturation:** 13 ~ 88

**Brightness:** 32 ~ 93
According to the figure above, red porcelain colors have a broad range of saturation and brightness. And most of them are yellowish red.

Blue

<table>
<thead>
<tr>
<th>RGB</th>
<th>CMYK</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>165, 211, 205</td>
<td>C40, M2, Y23, K0</td>
<td>Turquoise Bluish Green</td>
</tr>
<tr>
<td>96, 177, 192</td>
<td>C64, M10, Y24, K0</td>
<td>Sky Blue</td>
</tr>
<tr>
<td>186, 208, 219</td>
<td>C32, M11, Y12, K0</td>
<td>Baby Blue</td>
</tr>
<tr>
<td>184, 192, 208</td>
<td>C26, M15, Y9, K0</td>
<td>Pale Bluish White</td>
</tr>
<tr>
<td>162, 168, 184</td>
<td>C36, M29, Y15, K0</td>
<td>Blue Gray</td>
</tr>
<tr>
<td>138, 166, 187</td>
<td>C47, M26, Y17, K0</td>
<td>Saxe Blue</td>
</tr>
<tr>
<td>138, 129, 164</td>
<td>C46, M46, Y11, K0</td>
<td>Dull Purple Blue</td>
</tr>
<tr>
<td>129, 163, 180</td>
<td>C55, M27, Y24, K0</td>
<td>Dull Blue</td>
</tr>
<tr>
<td>106, 157, 204</td>
<td>C58, M28, Y4, K0</td>
<td>Myosotis Blue</td>
</tr>
<tr>
<td>92, 122, 153</td>
<td>C72, M40, Y25, K0</td>
<td>Smokey Blue</td>
</tr>
<tr>
<td>163, 125, 135</td>
<td>C67, M41, Y40, K0</td>
<td>Lake Greyish Blue</td>
</tr>
<tr>
<td>73, 99, 116</td>
<td>C81, M57, Y46, K0</td>
<td>Mineral Blue</td>
</tr>
<tr>
<td>227, 230, 217</td>
<td>C75, M38, Y20, K0</td>
<td>Peking Blue</td>
</tr>
<tr>
<td>57, 127, 132</td>
<td>C90, M28, Y46, K0</td>
<td>Fuchsia Green</td>
</tr>
<tr>
<td>73, 125, 160</td>
<td>C75, M43, Y25, K2</td>
<td>Azure Sky</td>
</tr>
<tr>
<td>59, 70, 85</td>
<td>C89, M77, Y61, K15</td>
<td>Dark Indigo</td>
</tr>
<tr>
<td>65, 62, 80</td>
<td>C81, M83, Y60, K21</td>
<td>Deep Purplish Blue</td>
</tr>
<tr>
<td>27, 47, 76</td>
<td>C100, M73, Y32, K46</td>
<td>Night Blue</td>
</tr>
<tr>
<td>47, 87, 111</td>
<td>C86, M57, Y40, K19</td>
<td>Dark Greenish Blue</td>
</tr>
<tr>
<td>16, 38, 69</td>
<td>C8, M84, Y44, K46</td>
<td>Dark Blue</td>
</tr>
<tr>
<td>41, 73, 94</td>
<td>C88, M63, Y44, K28</td>
<td>Dark Greenish Blue</td>
</tr>
<tr>
<td>35, 49, 109</td>
<td>C100, M87, Y19, K18</td>
<td>Ultra Marine</td>
</tr>
<tr>
<td>26, 81, 121</td>
<td>C100, M45, Y14, K40</td>
<td>Azure Blue</td>
</tr>
<tr>
<td>49, 68, 136</td>
<td>C95, M75, Y11, K0</td>
<td>Indigo</td>
</tr>
<tr>
<td>0, 96, 173</td>
<td>C100, M55, Y0, K0</td>
<td>Acid Blue</td>
</tr>
<tr>
<td>57, 152, 192</td>
<td>C73, M26, Y12, K0</td>
<td>Bright Blue</td>
</tr>
</tbody>
</table>
As the figure shows above, blue porcelain colors have the broadest range on color board from greenish blue to reddish blue, low saturation to high saturation and low brightness to high brightness. Some blue porcelain colors are duplicated to the celadon colors, but most of the times blue porcelain colors are higher saturated and lower bright.

Besides the RGB number and CMYK number, I also used words to describe the colors, and those words are mostly used to define colors in traditional Chinese literatures. I found those words from Chinese dictionaries and books, named porcelain colors according to their features. Since traditional Chinese colors are described in words not defined by accurate data, the RGB numbers and CMYK numbers are more like general references to easily make a sense of porcelain colors. Their data are not exactly fixed; similar colors could also be considered as porcelain colors. And the hue, saturation and brightness ranges are useful references while designers are designing their own porcelain colors.

Section 2 Porcelain Color Application Principles

Traditional porcelain colors are disengaged, idea colors. They are not just the embodiment of aesthetic spirit, but also an appearance of culture. Influenced by living environment, aesthetic
preference and cultural psychology, porcelain color design showed itself in a trend of diversification. Beside monochrome porcelains, kaleidoscopic color designs could be seen on painted porcelains. Like the traditional Chinese color perceptions, porcelain color design could be specifically divided into three styles: royal, literature and folk.

2.1 Royal Style

With the growing popularity of Buddhism, it has been gradually used as political tools and promoted in the whole realm to consolidate ruling classes’ power during Wei and Jin Dynasties. Buddhist arts and culture have also been deeply loved by ruling classes, and seriously influenced the royal art aesthetic. Gold usually be used in Buddhist Art for emphasizing the supreme sacredness. Therefore gold decorative patterns appeared on many royal style porcelains. But mostly gold appeared as assisting patterns on different porcelains, seldom be used as main color. Until Ming Dynasty, yellow became the official color of the court, represented the imperial authorities and from that time only served the royal family. General publics were not allowed to use this color. For this reason many royal style porcelains, especially these after Ming Dynasty, usually use yellow as main color and other colors as assisting color. Gold and yellow can be considered as the representative color of royal style, most of the royal porcelains have at least one color of these two.

Because of the definition and classification of the orthodox and unorthodox colors in the five-color theory, the orthodox color of the ruling class are usually dignified, expressed a majestic and solemn feeling. Hence the royal style porcelain colors are also relatively heavy. No matter red, green or blue, they all appeared as dark colors on royal porcelain, in order to deliver an atmosphere of reputation of royal family.
Generally speaking, the application principles of royal style are as below:

1) When yellow was used, it always is the main color and other colors are assisting color.

2) When using other colors as main color, they should be low valued and high saturated.

3) Gold is always the assisting color

4) The color composition should not be very complicate. In order to express the dignity usually the color composition will contain no more three colors.
2.2 Literature Style

Influenced by the “nihility” worldview of Taoism, most of the literature style porcelains are simple, plain monochrome porcelains. Even though sometimes there are second, third color appeared, they are still appeared naturally, not intentionally. The gradient between colors is just as brushwork of traditional Chinese paintings, flows smoothly, and does not have obviously artificial trace. This is the representation of Taoism’s pursuing of returning to nature. Everything comes naturally, cannot be intentionally pursued. This natural color composition is just the “inaction” attitude of Taoism.

Early Taoist thoughts devoted particular care to colorless world of black and white. When it applied on porcelain color, it became the simple, low-keyed monochrome porcelain. Most of the literature style porcelain colors are fresh, elegant, and low saturated. Natural colors, like celadon color and white, are Chinese literati’s favorites. They pursued the extreme purity of white color. Ancient literature considered themselves as the white moon. They believed that moon represents the noble, pure and untainted personalities. Therefore white became the representative color of literature style.

When more than two colors appeared on literature style porcelain, the light, pale colors are always the main color, assisted by smaller area of other colors. This is the same expressing technique as “blank space” in traditional Chinese painting. Chinese painters believe that a large portion of blank could naturally form a distant, deeply mood on a picture, offer viewer an imaginable space.

Broadly speaking, the application principles of literature porcelain are as below:

1) Use colors with the same hue and different value to make the sense of depth

2) Use large low saturated colors

3) Use naturally, smooth Gradient

4) Use large portion of white or light colors to make the sense of space
2.3 Folk Style

Folk style porcelains are mostly made with expression of happy life and fortune, hence folk colors are usually exaggerating, bold and with strong decorative style. Folk color compositions are also more complicate than the other two styles. Only in Qing Dynasty, the color compositions of folk porcelain could be categorized as five-colors, clash color, plain tricolor and many other methods. The principles are carried down from generation to generation by formulas, and these formulas are come from craftsmen’s experience through thousands years. Folk porcelains are used to distinguish colors by “hard” and “soft”. Red, purple and black are considered as hard colors, while yellow, pink and green are soft. The five-color methods could be divided as “hard” and “soft”. As the formula said, “soft with hard, color will not be bad.” That is to say the composition of soft color and hard color could make the picture vividly. The reason is most of the
hard colors have the similar value; they will look like bored if they were put together. On the other hand, there will be contrast on value if they were put with soft colors.

Because of the technology development, porcelain did not become the ordinary people’s daily necessities until Ming and Qing Dynasty. And the high-volume production of folk color porcelain did not appear until that time. The five-color porcelain and clashing color porcelain are the representative folk color applications in Qing Dynasty. Five-color porcelain mostly uses red, yellow, blue, purple, green and black colors with complicate decorative patterns, and red, green, yellow are main colors. The color compositions of clashing colors are even more than five-color, but also more fresh and bright than five-color.

In summary, the features of folk style application principles are as below:

1) Use high saturated primitive colors
2) Use strong contrast colors and complementary colors
3) Use colors in different values
4) Evenly portion in different colors
Figure 39: Folk Style Color Schemes
CHAPTER V

USER TESTING

Section 1 Set up the User Testing

1.1 Set up the document: Creative posters

My hypothesis is that porcelain color schemes and application principles could offer designers a guide for using porcelain color to satisfy the taste of Chinese people. In order to prove my hypothesis, I set up a user testing that could help me better understand the usability and the inadequacies of my topic.

The specific operation is to create a pair of posters. One is the original poster; one is the revised poster used porcelain color scheme. I created four pairs of posters. They respectively used four types of porcelain color schemes: royal + literature, literature, royal and folk.

Then I created four surveys for each of them; ask the testers questions about these two posters. The questions include their emotional response and aesthetic tendencies about the colors used on posters.

2.2 Set up the questions

In order to obtain the most efficient feedback, I kept all surveys as short as testers will not bother with it. I also used a seven-point scale to quantify my results that allowing me to identify some
trends. Instead of asking opinion questions that testers can simply answer “yes” or “no”, I still ask them subjective questions, such as their emotional response about the documents.

The questions are as below:

1. Please tell me your nation, gender, age and profession.

2. Please list 3 words to describe Poster A.

3. Please list 3 words to describe Poster B.

4. How much do you like poster A?
   - Very like
   - Like
   - Somewhat like
   - Neither like or unlike
   - Somewhat unlike
   - Unlike
   - Very unlike

5. How much do you like poster B?
   - Very like
   - Like
   - Somewhat like
   - Neither like or unlike
   - Somewhat unlike
   - Unlike
   - Very unlike

6. In poster A, the poster colors represent the poster content very well.
   - Strongly agree
   - Agree
   - Somewhat agree
   - No opinion
   - Somewhat disagree
   - Disagree
• Strongly disagree

7. In poster B, the poster colors represent the poster content very well.

• Strongly agree
• Agree
• Somewhat agree
• No opinion
• Somewhat disagree
• Disagree
• Strongly disagree

8. Poster A is more related to ________ culture.

• Western
• Eastern
• Both
• Neither

9. Poster B is more related to ________ culture.

• Western
• Eastern
• Both
• Neither

Section 2 Results Analysis

2.1 Royal + Literature Color Schemes
Subjects’ information:

1) Total responses: 25
2) Nation: 100% Chinese
3) Age: 20 – 30
4) Profession: 12% Design, 82% Others

Survey Results:

1) Please list 3 words to describe Poster A.
   
   Spring, warm, happy, suffocating, cheesy, blurry vision, beautiful, far-reaching, soft, Busy, folk, too much color, complicated, colorful, saturated, colorful, bright, fresh, cartoon, lotus, blue, Water, night, lotus, rustic, gaud, gaud, gaud, bad, poor, terrible, rich, man-made, complicated, vivid, fascinating, gorgeous, over-saturated, pop like,
uncomfortable, cartoonish, bright, night, ugly, weird, strong, cheap, Chinese, flowery, Lotus, west lake, fan, fake, irrational, gross, fake, weird, heavy, beautiful, colorful, blue, night Xihu, strange season, unbalanced, cool explicit culture

2) Please list 3 words to describe Poster B.

cold, sad, cold, quiet, beautiful, theme outstanding, monotonous, real, ordinary, Quite, elegant, traditional, white, elegant, peaceful, elegant, neat, ancient, lotus, Chinese, peaceful, lotus, lake, snow, high class, better still gaud, Chinese style, beautiful, peaceful, simple, natural, leisurely, peaceful, subdued, fresh, elegant, neatly, simple, snowy, clear, oil painting, silent, cool, ok, vintage, Chinese, delicate, Hangzhou, lotus, west lake, beautiful, harmonious, persuasive, fresh, pure, suitable, clean, quiet, suitable, winter, snowy, evening Xihu,

3) How much do you like poster A?

8% Very like 8%
4% Like
20% Somewhat like
16% Neither like or unlike
16% Somewhat unlike
28% Unlike
8% Very unlike

4) How much do you like poster B?

56% Very like
16% Like
16% Somewhat like
4% Neither like or unlike
4% Somewhat unlike
4% Unlike
0% Very unlike
5) In Poster A, the poster colors represent the poster content very well.
   8%  Strongly agree
   8%  Agree
   16% Somewhat agree
   **36% No opinion**
   16% Somewhat disagree
   12% Disagree
   4%  Strongly Disagree

6) In Poster B, the poster colors represent the poster content very well.
   **44% Strongly agree**
   36% Agree
   12% Somewhat agree
   8%  No opinion
   0%  Somewhat disagree
   0%  Disagree
   0%  Strongly Disagree

7) Poster A is more related to ________ culture.
   20% Western
   32% Eastern
   8%  Both
   **40% Neither**

8) Poster B is more related to ________ culture.
   0%  Western
   **95.8% Eastern**
   4.2% Both
   0%  Neither
Table 1: Result Analysis of literature + royal style posters

How much do you like Poster A/B?

A: 28%
B: 56%

In Poster A/B, the poster colors represent the poster content very well.

A: 36%
B: 44%

Poster A/B is more related to _______ culture.

A: 40%
B: 95.8%
2.2 Folk Color Schemes

Subjects’ information:

1) Total responses: 30
2) Nation: 100% Chinese
3) Age: 21 – 38
4) Profession: 10% Design, 90% Others

Survey Results:

1) Please list 3 words to describe Poster A.

Red, conventional, colorful, traditional, colorful, touching, happy, colorful, Chinese, red, Chinese, love, warm, red, people, moon, red, joyful, enthusiasm, noisy, high contrast, busy, colorful, red, striking, red, good, love, red, Chinese, love, traditional, plain, mundane, happiness, love, traditional, traditional, Chinese, red, bad, poor, terrible, classical, dark, festive, bright, colorful, complicated, ambiguous, distractive, dispersive, grey, over-saturated, vernacular, Asian, happy, color, red, paper, fire cracker, warm, flowery, Chinese, red, love, China, Red, Square, complex, traditional, folk, joyous, rich, happiness, big day, China
2) Please list 3 words to describe Poster B.

Prettier, prettier, prettier, traditional, romantic, a little sad, clean, bright, quite, Chinese, exquisite, beautiful, clear, white, moon, bird, white, elegant, tidy, clean, quite, folk, obscure, low-key, pale, family, white, harmony, white, colorful, festival, white, Chinese, good, art, love, traditional, ink and wash, beautiful, Chinese style, romantic, bright, color, outstanding, simple, graceful, neat, contrast, concise, appealing, clean, light, dynamic, clean, better, contrast, unfinished, funereal, paper, romantic, Chinese, clean, white, lover, China, white, colorful, blur, romantic, fashion, weird, romantic, fashion, strange, Japanese, old story, delicate, culture, design

3) How much do you like poster A?

6.7% Very like 8%

36.7% Like

23.3% Somewhat like

10% Neither like or unlike

13.3% Somewhat unlike

10% Unlike

0% Very unlike

4) How much do you like poster B?

26.7% Very like

23.3% Like

36.7% Somewhat like

6.7% Neither like or unlike

6.7% Somewhat unlike

0% Unlike

0% Very unlike

5) In Poster A, the poster colors represent the poster content very well.

13.3% Strongly agree
26.7%  Agree
26.7%  Somewhat agree
10%  No opinion
13.3%  Somewhat disagree
6.7%  Disagree
3.3%  Strongly Disagree

6) In Poster B, the poster colors represent the poster content very well.

23.3%  Strongly agree
23.3%  Agree
23.3%  Somewhat agree
3.3%  No opinion
20%  Somewhat disagree
6.7%  Disagree
0%  Strongly Disagree

7) Poster A is more related to ________ culture.

3.3%  Western

76.7%  Eastern

0%  Both

20%  Neither

8) Poster B is more related to ________ culture.

16.7%  Western

56.7%  Eastern

16.7%  Both

10%  Neither
Table 2 Result Analysis of folk style posters
2.3 Literature Color Schemes

Figure42 Literature style posters

Subjects’ information:

1) Total responses: 25
2) Nation: 100% Chinese
3) Age: 21 – 28
4) Profession: 12% Design, 82% Others

Survey Results:

1) Please list 3 words to describe Poster A.

Green, tea, gasping, strong color, blurry, mismatching color, expressive, far-reaching, soft, rural, busy, cheap, folk, cool, relax, romantic, tea, green, color, Chinese, spring, ancient, regular green tea, green, peaceful, nature, green, reduplicate, fresh, rich in color,
green, sophisticated, tranquil, comforting, relaxing, obscure, grey, homogeneous, fading, foggy, green, weird, green, biohazard, Chinese, classic, lively, bamboo, peace, China, depressed, artificial, fake, fresh, peaceful, elegant, fresh, pure, meaningful, summer, green tea, rural

2) Please list 3 words to describe Poster B.

Chill, cool, quite, beautiful, peaceful, theme outstanding, real, brisk, cheerful, clear, quite, traditional, Zen, elegant, cultural, peaceful, bamboo, Chinese, water, Chinese, indie, sooth, high quality, tea, peaceful, quite, inner peace, bright, outstanding, modern, lively, fresh, natural, plain, succinct, natural, elegant, clean, neatly, fresh, clear, ink, silent, eastern world, classic, broad mind, inner peace, flower, rational, beautiful, meaningful, clean, vast, bleak, depressive, gloomy, desolate, tea culture, leisure, early spring, concise, delicate, light

3) How much do you like poster A?

16% Very like 8%

28% Like

16% Somewhat like

8% Neither like or unlike

8% Somewhat unlike

20% Unlike

4% Very unlike

4) How much do you like poster B?

48.0% Very like

32% Like

16% Somewhat like

4% Neither like or unlike

0% Somewhat unlike

0% Unlike
0% Very unlike

5) In Poster A, the poster colors represent the poster content very well.

  16% Strongly agree
  
  32% Agree
  
  20% Somewhat agree
  
  4% No opinion
  
  12% Somewhat disagree
  
  16% Disagree
  
  0% Strongly Disagree

6) In Poster B, the poster colors represent the poster content very well.

  52% Strongly agree
  
  28% Agree
  
  16% Somewhat agree
  
  4% No opinion
  
  0% Somewhat disagree
  
  0% Disagree
  
  0% Strongly Disagree

7) Poster A is more related to ________ culture.

  8% Western
  
  64% Eastern
  
  12% Both
  
  16% Neither

8) Poster B is more related to ________ culture.

  4% Western
  
  84% Eastern
  
  8% Both
4% Neither

Table 3: Result Analysis of literature style posters
2.3 Royal Color Schemes

Subjects’ information:

1) Total responses: 27
2) Nation: 100% Chinese
3) Age: 20 – 28
4) Profession: 9% Design, 91% Others

Survey Results:

1) Please list 3 words to describe Poster A.

Rich, lucky, blessed, traditional, colorful, festival, dark, gray, enriched, serious, jubilantly, cheerful, beautiful, rich, passion, folk, happy, plush, luxury, gorgeous, fish, red, lucky, Chinese, beautiful, traditional, solemn, history, typical Chinese style, harmony, bad, poor, terrible, traditional, noble, bright, gloomy, blurring, dark, inapprehensive, confusing, fancy, festival-like, well decorated, refine texture, burnt, luxury, traditional, historical,
lux, fancy, Chinese, luxury, allegoric, fish, China, gold, gorgeous, rich, vivid, traditional, warm, harmonious, China, jubilation, Empire

2) Please list 3 words to describe Poster B.

Ok, ok, ok, cool, modern, peaceful, clear, clean, bright, graceful, brisk, lovely, cool, disharmony, decant, clear, fish, Chinese, blue, Chinese, fish, blue, artful, traditional, relax, clear, peace, Chinese, disharmony, Chinese style, beautiful, peaceful, dark, modern, innovative, sharp, tranquility, noble, fresh, elegant, focused, balanced hue, contrast, grey, calm, clear, modern, egg, historical, sky, Chinese, vintage, allegoric, fish, Chinese, sky, weird, light, useless, cold, irrational, weird, Korea, Empire, leisure, peaceful, culture, lovely

3) How much do you like poster A?

   48.1%   Very like
   22.2%   Like
   18.5%   Somewhat like
   11.1%   Neither like or unlike
   0%     Somewhat unlike
   0%     Unlike
   0%     Very unlike

4) How much do you like poster B?

   37.0%   Very like
   18.5%   Like
   18.5%   Somewhat like
   11.1%   Neither like or unlike
   3.7%     Somewhat unlike
   7.4%     Unlike
   3.7%     Very unlike

5) In Poster A, the poster colors represent the poster content very well.
33.3%  Strongly agree

32%  Agree

18.5%  Somewhat agree

7.4%  No opinion

3.7%  Somewhat disagree

0%  Disagree

0%  Strongly Disagree

6) In Poster B, the poster colors represent the poster content very well.

18.5%  Strongly agree

44.4%  Agree

11.1%  Somewhat agree

11.1%  No opinion

7.4%  Somewhat disagree

3.7%  Disagree

3.7%  Strongly Disagree

7) Poster A is more related to ________ culture.

0%  Western

85.2%  Eastern

3.7%  Both

11.1%  Neither

8) Poster B is more related to ________ culture.

29.6%  Western

40.7%  Eastern

11.1%  Both

8.5%  Neither
Table 4 Result Analysis of royal style posters
2.5 Results Analysis

Most of the results proved my hypothesis very well. In three of four surveys, testers like the revised posters more than the original poster. It demonstrated that porcelain colors could abstract people’s attention effectively. Negative words are seldom used to describe the revised posters, while neutral and negative words are sometimes could be seen in original posters’ descriptions. The data also indicated that revised posters successfully aroused Chinese audiences’ emotional responses and eastern cultural identity.

However, in the royal style test, the data indicated that most of the people like the original poster more than the revised one. After more research I finally found out the reason. Although the color composition of red and gold is seldom used in porcelain color design, it does broadly exist in other traditional Chinese Arts such as the New Year Paintings and Court Architectures. Red has been the most important representative color of China since primitive society. It means the Sun, blood, life, luck and fortune to Chinese people. The deep-rooted red color perception cannot be easily shaken by any other color. The same situation was appeared in the folk style test. Although more people chose “Very like” on the revised poster, there are more positive words are used to describe the original one. Although they think the original one is kind of noisy and too colorful, they red background still gives them a sense of lucky, love and traditional. Another reason of the failure of royal style test is that blue is always being considered like an exotic color in traditional Chinese culture. At the very beginning blue is not a lucky color in Chinese people’s opinion. The appreciation of blue color came along with the Silk Road form Islamic regions about a thousand years ago. Although blue finally became a beloved color and appeared on royal porcelains, it still cannot replace red color’s position in Chinese people’s mind.

Generally speaking, the results demonstrated that porcelain color guide and principles are useful and effective in graphic designs, especially the literature style color compositions. The data
indicates that the literature color compositions greatly aroused people’s aesthetic resonance of nature, which is a deep-rooted personality in Chinese people’s mind.
CHAPTER VI

CONCLUSION

Tradition divided into two types: tangible and invisible. The invisible tradition is the mental states of human beings. For the color perceptions, the creative motivation and patterns of use are their mental states. Some color perceptions were depressive and secluded. But when the new time and new thoughts came, they will show their charm. This presentation is not just the simple inheritance of the existing color design and application, but also the inheritance of the intrinsic possibility of the color perception. That is to say, the trend of returning to tradition is not really going back into old times, but inheriting and developing the tradition.

When we start to use porcelain color guides to design, the traditional and historical color perceptions will become the reference value in our mind. And the reference value will strengthen the designers’ capability and confidence of color design. It requires me to not only be limited to replication and reduction of traditional colors, but stand at a higher point, comprehensively understanding the entire factors like geographical environment, economic basis and human demands.

This thesis stated the significant of porcelain color guide from different aspects: the importance of color design, the trends of color in China, the traditional color perceptions and their influential
theories, the development of porcelain color and the user testing of porcelain color application principles. Of course I met some failures while creating the color guide, that is because of some color perceptions are not suitable in the modern society. Therefore, we need to critically inherit the traditional color perceptions.

In this thesis, I summarized the value of porcelain color guide and application through the study of traditional Chinese colors culture. And my purpose is to prove that porcelain colors could push forward the innovative awareness of modern color design and reproduce the value of traditional culture. Studying the traditional porcelain color made me obtained a historical understanding of Chinese traditional culture. I understood that modern color perception cannot exist without the influence of the traditional color philosophy, yet there are more things we need to explore.


Han Lin, “Monochrome Ware”, Beijing Arts and Crafts Press, 2011

Tieyuan, “Color Glazed Porcelain of the Ming and Qing Dynasties”, Hualing Publishing House, 2002


Guangyuan Li / Fuxing Deng, “Color Art”, Heilongjiang Fine Arts Press, 1994

Jiegang Gu, “Han Dunasty Academic Brief History”, People’s Publishing House, 2008