

A Study on color features based on color classification of the Korean royal costumes during Choseon Era

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Abstract. In 21c that is so much as to be called as the times of design revolution, importance of design has been highlighted in each industrial field. In particular, in fashion industry, a case of grafting cultural characteristics and sensibility of each country in design based on information, culture and sensibility has been increased. As needs and consciousness of trying to express ethnic uniqueness and identity are increased, development of costumes or products containing Korean identity would be required. Therefore, in this study, through a research on color design, an image of Korean traditional royal costumes during Choseon era was observed and symbol and meaning of color were classified.

Keywords: Color classification, Korean royal costumes

1 Introduction

Traditional color means a color having historic background of a specific region. Regional color is a color being perceived as unique color by cultural influence is repeated habitually. As transmission power of color is stronger than any other visual elements and induces psychological reaction or activity process, traditional color contains local features and nature, culture of local people.

Association being evoked by people when faced with color mainly depends on personal element but as this association activity is gradually settled down socially, it was made to have a kind of symbolic meaning. When an association being commonly evoked by many people in a specific color is combined with tradition, it becomes a custom and shows a special character depending on region or ethnic group[1].

In other words, based on traditional color, social, historical context represented by such color could be identified together. Therefore, in this study, symbol and meaning of color of Korean royal costumes during Choseon era that is the last dynasty of Korea is intended to be explored. In order to perform an experiment, after extracting royal costumes image file by Hue, Chroma, Value based on Munsell color system, it was applied to image space of sensibility adjective.

The objective of this study is to contribute to fashion design, diversified contents and product development designers.

2 Related Studies

2.1 Korean royal costumes during Choseon era

In connection with spirits, living rites or system. Korean people would use colors depending on color symbol by vesting costumes, folk, life style with meaning based on thinking system of Yin-yang & five elements theory. Color having been used traditionally is 5 basic colors (blue, red, yellow, white, black) and it symbolizes a vision of the universe as 'Abstract words' of color, not color itself. It goes without saying that these colors must be our symbolic colors starting from 5 primary colors up to the present time since Choseon era. These 5 colors have been distributed to our daily life and used as a tool or rule expressing various emotions [2].

And in traditional pattern, various living materials have been shaped with chronological cultures as background. Therefore, it is considered that in such pattern, ethnic features and uniqueness are dwelled quite considerably [3] and Korean traditional pattern means pattern style and its entirety having been passed down in our ethnical history from the ancient times up to the present based on our historical background [4]. Korean traditional pattern could be divided into animal, birds, fishes/shellfishes, insects, amphibians, plant, mineral, objects, geometric pattern depending on each material [5].



Fig. 1. Costumes of Choseon King and Queen

In this study, meaning of costumes of royal king and queen containing identity of Chosen is intended to be explored through color design research. Left costumes of Fig. 1 is Gonryongpo worn by King of Chosen era. Gonryongpo is also called as Yongpo and it is a formal working uniform of king. Gonryongpo that is Durumagi (overcoat) shaped top coat was made with yellow or red silk and red liner was inserted in yellow hem or thread and Ojoryong embroidered with golden thread called Bo was attached to chest, back and both shoulders.

Right costumes of Fig. 1 is Jeokeui worn by royal queen during Choseon era. Jeokeui is a court dress of crown princess. Jeokeui is not only female costumes of the highest status during Choseon era but also signified as a status symbol of royal family in a class society where top and bottom class status was clearly defined.

2.2 Color design

In Munsell color system [6], total 10 colors were designated as basic colors of hue type by selecting 5 colors including red, yellow, green blue and purple and each neutral color. Red hue was encoded as R, yellow hue Y, green hue G, blue hue B, purple hue P and by inserting neutral colors of YR (yellow red), GY (green yellow), BG (blue green), PB (purple blues), RP (red purple) between each sign, 10 colors were designated as basic colors and by classifying 10 major hues as 10 hue stages, total 100 hues were divided into total hue.

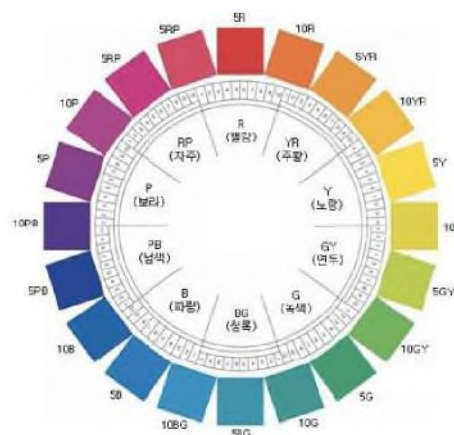


Fig. 2. Munsell Color System

In addition, in case of value, total color system was implemented by classifying pure black as 0, pure white as 10 depending on reflectance of light and in case of chroma, achromatic color was classified as 0 and chroma was classified as maximum 1427 depending on chroma equivalence and then total color system was implemented. In this study, Munsell color system was applied after extracting colors of image file.

3 Main Body

3.1 Experiment environment configuration and process



Fig. 3. I.R.I Hue & Tone 120

Fig. 3 was developed by Korea I.R.I. color research [7] and it is a color chart that facilitates color distribution analysis by simplifying color expression by three attributes of hue, value and chrome into hue and tone. By developing hue color system of various types having already been developed, such system was developed to the direction of considering worldwide universality while accommodating Korean sense. 120 colors include 110 chromatic colors and 10 achromatic colors and 110 chromatic colors comprise 10 hues and 11 tones.

Ham [8] classified colors applied to game application by using I.R.I Hue & Tone 120 system. In this study, by quoting a method borrowed by Ham, image color was extracted as C++ and extracted color value was implemented based on a program applied to color chord of I.R.I color institute. First, by using crystalize among photo shop filter menus of Adobe, color sample comprising image was extracted.

This method is a simplified work of designating hue of extracted sample that may represent screen configuration through proper pixilation in order to exclude colors of contrast not required in a process of extracting color sample. Color value of image was substituted by Hue & Tone 120 of I.R.I color institute by converting it into hue, chroma, value matched with Munsell color system after extracting it being simplified like this. Fig. 4 is a process of experiment program.



Fig. 4. Experiment Process

3.2 Experiment result and consideration

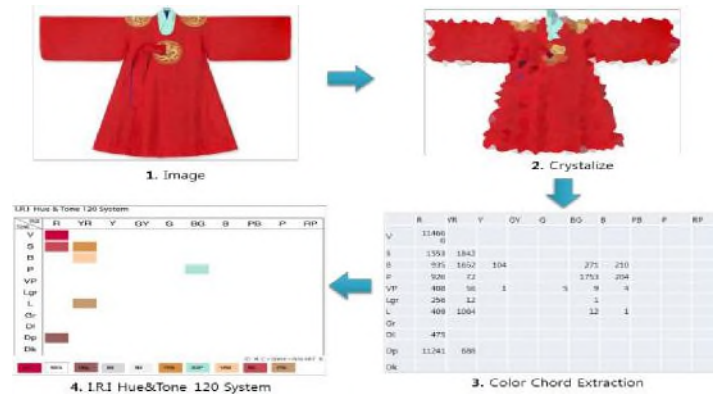


Fig. 5. Experiment Process of Gonryongpo of King

For an experiment, image file of Gonryongpo worn by a king and Jeokeui worn by a queen during Choseon era was applied to implemented program. This program classified typical colors by utilizing I.R.I color chord after digitizing Munsell color chord of extracted image in excel file.

Fig. 5 shows a process where an experiment of Gonryongpo of a king was progressed and its sequence is as follows. 1. Select original image. 2. Crystalize in order to simplify image. 3. Crystalized image is extracted based on Munsell color chord. 4. Classify colors based on I.R.I. Hue & Tone 120 system. As a result of experiment, it could be confirmed that R(Red) V(Vivid) of which pixel was 114600 were represented as representative color of relevant image file. Hue that showed the largest distribution map as representative hue was R Dp (11399) and followed by YR S (2469), BG P (1715).

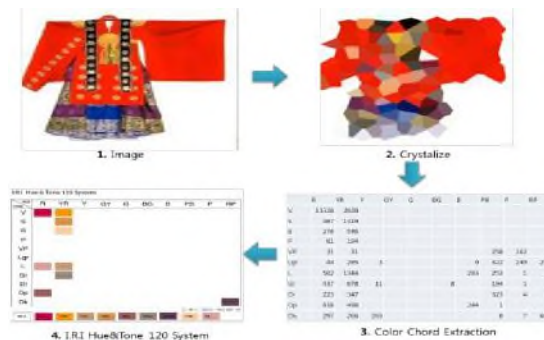


Fig. 6. Experiment Process of Jeokeui of Queen

Fig. 6 is a process of experimenting Jeokeui of queen and its sequence is as follows. 1. Select original image. 2. Crystalize in order to simplify image. 3. Extract crystalized image based on Munsell color chord. 4. Classify colors based on I.R.I Hue & Tone 120 system. As a result of experiment, pixel of R(Red) V (Vivid) was the largest as 11328 and represented as representative color image and pixel was extracted in the order of YR S (2028) > YR L (1344) > YR S (1319). As a result of experimenting 2 images, in hue of both Gonryongpo (king) and Jeokeui(queen), RV

hue was confirmed as representative color. RV hue being confirmed as representative hue was red color. Red color as a symbol of 5 basic colors contains a meaning of vivid stamina, flourish of all creatures and giving birth to life and keeping it.

4 Conclusion

In order to analyze symbolic meaning of color used for royal costumes that was worn by king and queen during Choseon era, I.R.I color chord was utilized after extracting image file of costumes based on Munsell color system chord. An experiment was progressed based on Gonryongpo worn by a king and Jeokeui worn by a queen during Choseon era and as RV values of two costumes were 114600 pixels and 11328 pixels, respectively and the largest pixel was extracted, it was confirmed as representative color. RV value was bright red color and symbolic meaning of 5 basic colors in Korea contains a meaning of protecting people and making all the creatures to be flourished. In this study, in order to analyze meaning of color, digital image was used. And the reason of this is that a future analysis of diversified traditional costumes as well as royal costumes and traditional costumes by each country would be facilitated.

Therefore, as a future research, formalization and standardization of costumes' colors are scheduled to be progressed by researching on meaning of sensibility and preference contained in each traditional costume by each country after analyzing traditional costumes, costumes by each country based on engineering classification of color meaning utilizing human sensibility ergonomics.

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