

The Color Image and Stereotyping of Women's Korean Traditional Costumes

- A Qualitative Analysis on Stimuli's Ages, Occupations -

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Abstract

The purposes of the study are to find out the effect of clothing colors on perception of stimulus ages, occupations and images using stereotyping and color vision theories. The research method is a qualitative study and materials developed for the study are a set of stimuli and open-ended responses. The subjects were 1138 undergraduate students in Taejeon city, Chungnam and Chungbuk province. The data is analyze using content analysis, supplementary frequency and χ^2 analysis.

The results are as follows: 1) The colors in Korean traditional costumes affected on the wearer's age perception : The red ensemble give the wearer the youngest look while the gray give the oldest look. 2) Mono-color ensemble wearers tend to give older look than bi-color ensemble wearers. 3) The chima colors and the jogori colors have similar impact on the wearer's age perception.

4) On image perception the jogori colors have more impact than the chima colors. 5) The colors in Korean traditional costumes are the clues to estimate the wearer's occupation.

Key words : color stereotyping, color image, Korean traditional costume, age, occupation

I. Introduction

Color is not a tangible object but it involves a vast interactive process and affects every aspects of our lives in social context. The results of color researches explain that an acceptable color is defined by the object with which it is associated and this relation is the product of cultural norms and expectations or subjective color stereotyping¹⁾

Colors, as a perceptual element, also play important roles in impression formation through wearer's clothing. The Korean traditional cos-

tume is one of the most representative items in Korean clothing culture, and various colors and color combination sets are appropriate comparing to the Western style costumes. But some colors have become more traditional in their meaning for certain events, age roles and status of wearer since the Korean traditional dress is designed to relate to her cultural traditions and to the dress wearers. Clothing can be valuable clues to interpret a stranger at the first interaction and it is perceived with a color on color combination in real social context.

Many studies on color effects during perception are existed²⁻⁶⁾, however the results

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¹ K. R. Fehrman, and C. Fehrman, *Color The Secret Influence*, (New Jersey : Prentice Hall, 2000), 81.

are mixed and controversial and few did the research with colors in Korean traditional costumes.

The objectives of the study are to identify the color effect of Korean traditional costume on perception of the wearer's ages, occupations, and images using stereotyping and color vision theory. In understanding color effect, it will be important to differentiate between culturally stereotypes which is learned color association and true biological responses.

II. Theoretical Background

Theoretical background of the study is color stereotyping and color vision theory. Stereotypes are pictures in the head, or mental images that perceivers use to place others into categories and then to apply certain cognitive structures⁷⁾. In perception process, the stereotyping exist on elements of clothing sort, color and motif pattern. The danger of stereotyping result in an oversimplified, exaggerated, or/and inaccurate assessment, but it help easily estimative about others⁸⁾.

Color perception involves physiological process through eyes⁹⁾ and basic colors are blue, green, and red, and for color categorizingness yellow color is included in addition to the 3 basic colors. The visual evaluation of clothing color images show that red color is more visible than any other colors.

But Erwin et al¹⁰⁾ presented light of different colors-red, blue, green, yellow for five mints to measure arousal properties of color, the results were mixed, and did not support. The hypothesis : red is more arousing than blue.

Human beings have amazing abilities when it comes to color discrimination; that is, observers could correctly report "same" or "different" for up to roughly one million colors. The observer must have some means of storing the color in memory. To do so it requires that the observer categorize color by attaching names to the colors. Four colors (blue, yellow, green and red) have special prominence in our sensory processes, and they also have special prominence in our psychological processes.¹¹⁾

The results of color researches are controver-

² H. W. Kahng, and A. R. Koh, "Effect of Design Modification and Color Scheme on Impression Formation of Traditional Korean Women's Clothing", *Journal of the Korean Society of Clothing and Textiles*, vol. 15, no. 2, (1991): 211-227.

³ J. H. Lee and H. W. Kahng, "The Effect of Apparel Design on Impression Formation Part II -Emphasis on the form & color of dress and of pants-blouse-", *Journal of the Korean Society of Clothing and Textiles*, vol. 19, no. 6, (1995): 984-994.

⁴ H. M. Lee, "The Impression Effects of Male Teacher's Garment Formality, Color, and Contexts -Male and Female High School Student's in Taejeon Area-" (Master's Thesis, Chungnam National University, 1995).

⁵ J. O. Lee, M. J. Kuhn, and Y. S. Park, "A Study on Coordination Image of Korean City Woman's Face Color(SYR 7/3) and Clothes Colors", *Journal of Korean Home Economics*, vol. 33, no. 2, (1995): 167-180.

⁶ H. S. Lee and J. S. Kim, "A Visual Image Perception of Clothing Colors, Color Combinations of Korean Traditional Dress for Woman(Part 2)", *Journal of the Korean Society of Clothing and Textiles*, vol. 22, no. 8, (1998): 1052-1059.

⁷ S. B. Kaiser, *The Social Psychology of Clothing*, second ed, (New York Macmillan Publishing Company 1990): 255.

⁸ S. B. Kaiser, 1990. *ibid*, 255.

⁹ M. W. Matlin, and H. J. Foley, *Sensation and Perception*, third ed., (Allyn & Bacon, Simon & Schuster Inc., 1992): 228.

¹⁰ Erwin et al, "Some Further Observation on Photically Elicited Arousal Response", *Electroencephalography Clinical Neurophysiology*, 13, (1961): 391-394.

¹¹ M. W. Matlin, and H. J. Foley, *ibid*, (1992): 239.

sial and somewhat mixed and culturally stereotyping and true biological responses are not differentiated in research results.

III. Research Method

This research is a quasi experiment based on a qualitative analysis. The instrument developed for the study is a set of stimuli and open-ended questionnaires. The controlled variables for stimuli are garment style(Korean traditional costume for adult women), face, hair style and figures. The independent variable is clothing colors : red, yellow, green, purple blue and gray. Colors are selected for mono-color ensemble and red, yellow, green, and purple blue colors are selected for 12 bi-color ensembles.

The stimuli are developed by using CAD simulation of vision printing system. Table 1 shows the identification of the colors applied to the stimuli.

Five open-ended questionnaires are developed to evaluate the stimulus person:

1. How do you estimate the age of the model in the picture?
2. How do you estimate the occupation of the model in the picture?
3. Do you think the model is married person? If so, how do you estimate the occupation of the husband?
4. Please tell us images of the model.
5. Please tell us your feelings on the model.

The CAD simulation of stimuli and open-

<Table 1> Property of Selected Colors of Stimuli (Munsell No.)

Clothing Color (independent variable)	yellow	2.5Y	8/12
	red	5R	4/14
	green	5G	5/10
	purple blue	7.5PB	3/12
	gray	N	4.75
Lip Color	7.5R 5/16		
Face & Hand Color	7.5PR 8/6		
Hair Color	N 2.25		

ended questionnaires are examined for the validity test by judging group and the reliability is tested by a pre-test.

1. Procedure

The subjects were 1138 undergraduate students in Taejon city, Chungnam and Chungbuk provinces by convenient sampling.

The research is a between subject design so each subject is allowed to respond to one stimulus picture, the total of 1138 data excluding 58 data which is not completed, were used for the result.

2. Data Analysis

The result of the open-ended questionnaires are categorized for the content analysis, however, at the same time, frequencies and χ^2 analysis are also performed for the quantitative analysis.

IV. Result and Discussion

1. Adjectives Related to Color Images of Stimulus Ensembles

Ten adjectives which is likely to associated with color images are emerged through content analysis. Considering the size of subjects, the responses are very limited since most adjectives are related to impression of the stimulus person. More than 200 different adjectives related to stimulus person's impression, are emerged, however, adjectives which are likely to related to color images of the stimulus ensembles are selected for the analysis.

1) Mono-color Ensembles

Mono-color ensemble means jogori(Korean style, short waisted jacket) color and chima (Korean style, long skirt) color are exactly same colored suit. The image of yellow ensemble is bright, red and purple blue ensembles are strong, the green is cool and the gray is dark. The symbolic properties of colors in Korean traditional costumes are not different from the western style garment since the result is agreed with Lee

<Table 2> Adjectives Presented in Mono Color Sets (frequency)

Adjective	Color						No.
	Y	R	G	PB	gray	gray	
Bright	6						6
Dark						19	19
Strong		20			15		35
Salient		5	4				9
Cold			23	11			34
Cool				9			9
Light						2	2
Heavy						6	6
Dull							0
Clean			5				5
No.	6	25	32	35	27		125

Y : Yellow R : Red G : Green PB : Purple Blue

et al¹²⁾ research with western style garments.

2) Bi-color Ensembles

For bi-color ensembles jogori and chima are different colored set, more adjectives are emerged comparing to mono-color ensembles. Cold and strong are most frequently appeared adjectives and overall color combination effects are grouped into 3 categories.

(1) Jogori Color Effect

Jogori color effect means the color of jogori is more dominate than chima color on color image perception of bi-color ensemble. Jogori colors are more influential than chima color on red and purple blue jogori ensembles and yellow jogori and red chima ensembles.

(2) Chima Color Effect

Chima color effect means the color of chima has more impact than jogori colors on color image perception, however chima color are appeared to be less dominate than jogori color in color image perception. Slight chima color effect is presented on purple blue chima with yellow jogori ensemble and green chima with yellow jogori ensemble.

(3) Jogori and Chima Interaction Effect

The interaction effect means that holistic ensembles images of the bi-color set are different from chima or jogori color images specially when two strong or opposite colors are matched. For yellow jogori and green skirt ensemble, for example, the emerged images are light or dull which are not appeared in yellow or green mono

<Table 3> Adjectives Presented in Bi Color Combination Sets (frequency)

Adjective	Color														no.
	Y	Y	Y	R	R	R	G	G	G	PB	PB	PB			
Bright	13 ^b			3	2				2						20
Dark											2				2
Strong				14 ^b	13 ^b	22 ^b		3			12 ^b	15	10 ^b		89
Salient			11 ⁱ			1									12
Cold			10 ^s		3	9	2	1	1	10 ^b	17 ^b	14 ^b			67
cool			3												3
Light		5 ⁱ	2	2		1	3								13
Heavy					4				7 ⁱ			1	3		15
Dull			7 ⁱ		1					1					9
Clean			3		3							1	1		8
No.	13	15	26	22	23	33	5	6	9	24	34	28		238	

^b:blouse effect ^s:skirt effect ⁱ:interaction effect

¹²⁾ J. H. Lee, and H. W. Kahng, *op. cit.*

-color ensembles.

Other interaction effects are observed in ensembles of yellow jogori and purple blue chima, red jogori and green chima, green jogori and purple blue chima.

On conclusion of color combination effects of bi-color ensembles, jogori color effects are more frequently observed than chima color effects or interaction effect, since jogori is placed nearer to the face which is a powerful clue on impression formation of clothing wearers and this result is agreed with Lee and Kim's study¹³⁾.

2. Perceived Age of Stimuli

To find out the color effect of ensembles on age perception, perceived age of stimulus person are grouped by 5 year intervals and the data are analyzed by χ^2 -test.

1) Mono-color Ensembles

The perceived age of clothes wears of mono color ensembles are ranged 16 to 50 years, however, 59% of subjects perceived the stimulus age between 20 to 29 years old.

There is a significant difference among different ensemble colors on wearer's age perception; the red ensemble gives the youngest look and the gray ensemble gives the oldest look as table 4.

2) Bi-color Ensembles

To find out any significant difference between

<Table 4> The Mean of Perceived Age of Ensemble Wearer (years)

Jogori \ Chima	Y	R	G	PB	Mean
Y	26.5 ^M	23.7	25.7	27.7	25.9
R	21.5 ^T	24.5 ^M	22.7 ^T	24.9	23.4
G	27.2	24.2	27.3 ^M	28.5 ^T	26.8
PB	27.1	26.3	26.3	27.5 ^M	26.8
Mean	25.6	24.7	25.5	27.2	

^M : Mono color ensemble ^T : traditional color combination

perceived age of mono-color and bi-color ensembles wearers, the mean ages are compared and the result are mixed.

In general mono-color ensemble wearers present more aged look than bi-color ensemble wearers expect red color ensembles which show no significant difference.

For bi-color ensembles, the differences in ensemble color combination result significant difference in perceived age differences.

Chima colors have similar power on the perception of wearer's age comparing to jogori colors as table 4. Yellow jogori's mean age(25.6 years old) is similar to the yellow chima's mean age(25.9 years old). This result is different from the color image perception of bi-color ensemble wearers where jogori colors have more impact than chima colors.

3) Traditional Color Combination Ensembles

The stimulus include 3 famous color sets of Korean traditional costume culture, that is yellow jogori and red chima, for unmarried young females, green jogori and red chima set for newly wedded brides, and purple blue jogori and green chima for married women.

Yellow jogori and red chima wearers are perceived youngest(21.5 years old), green jogori and red chima wearers are perceived 22.7 years old while purple blue jogori and green chima wearers give the oldest look(28.5 years old). This results support that learn cultural stereotyping on age perception of colored ensembles, still remain in younger generation.

3. Color Stereotyping on Occupation of Ensemble Wearers

The perceived occupation of ensemble wearers are categorized into 10 occupation clusters by a judge group which are consisted of clothing majored graduate students and instructors. χ^2 analysis is also performed to find out any significant difference on occupation perception existed according to the colors and color

¹³ H. S. Lee, and J. S. Kim, *op. cit.*

<Table 5> Perception of Stimuli's Occupation in Mono Color Sets frequency(%)

Occupation	Color	Y	R	G	PB	gray	Total
	Y	R	G	PB	gray		
Housewife		21(26.3)	14(17.5)	24(30.0)	21(26.3)	32(40.0)	112(28.0)
Professional		18(22.5)	24(30.0)	10(12.5)	21(26.3)	13(16.3)	86(21.5)
Hostess		10(12.5)	15(18.8)	13(16.3)	9(11.3)	5(6.3)	52(13.0)
White collar		4(5.0)	3(3.8)	10(12.5)	4(5.0)	12(15.0)	33(8.3)
Self-management		8(10.0)	3(3.8)	7(8.8)	3(3.8)	6(7.5)	27(6.8)
Blue collar		1(1.3)	2(2.5)	1(1.3)	2(2.5)	-	6(1.5)
Student		13(16.3)	6(7.5)	5(6.3)	1(1.3)	-	25(6.3)
Jobless		4(5.0)	4(5.0)	3(3.8)	2(2.5)	2(2.5)	15(3.8)
Artist		-	6(7.5)	2(2.5)	10(12.5)	2(2.5)	20(5.0)
Other responds		1(1.3)	3(3.8)	5(6.3)	7(8.8)	8(10.0)	24(6.0)
Total		80(100)	80(100)	80(100)	80(100)	80(100)	400(100)

combination of Korean traditional women's costumes and the result is statistically significant at the α level of $p < .001$. ($\chi^2=256.6$)

1) Mono-color Ensembles

Mono-color ensemble wearer's occupations are perceived as a housewife, professional and hostess at the order of importance as table 5.

There is tendencies emerged between perceived occupation and associated ensemble colors : A housewife is seemed to associate with gray, hostess with red and green colors, professional with red and purple blue, student with yellow and

artist with purple blue.

2) Bi-color Ensembles

12 bi-color ensembles are divided by chima colors into 4 groups and different jogori color effects on wearer's occupations are analyzed. Among yellow chima group, a green jogori has a tendency to give the impression of a housewife and red jogori and purple blue jogoris of hostess(Table 6).

In red chima ensembles, yellow jogori is also seemed to associate with a housewife, student or jobless, green jogori with a housewife, and

<Table 6> Perception of Stimuli's Occupation in Yellow Chima and Different Jogori Colors

Occupation	Color	Y	R	G	PB	Total
	Y	Y	Y	Y	Y	
Housewife		21(26.3)	12(19.4)	23(34.3)	16(26.7)	72(26.8)
Professional		18(22.5)	12(19.4)	10(14.9)	9(15.0)	49(18.2)
Hostess		10(12.5)	10(16.1)	6(9.0)	11(18.3)	37(13.8)
White collar		4(5.0)	5(8.1)	6(9.0)	7(11.7)	22(8.2)
Self-management		8(10.0)	6(9.7)	7(10.4)	3(5.0)	24(8.9)
Blue collar		1(1.3)	-	1(1.5)	-	2(0.7)
Student		13(16.3)	4(6.5)	7(10.4)	1(1.7)	25(9.3)
Jobless		4(5.0)	7(11.3)	3(4.5)	3(5.0)	17(6.3)
Artist		-	2(3.2)	1(1.5)	4(6.7)	7(2.6)
Other responds		1(1.3)	4(6.5)	3(4.5)	6(10.0)	14(5.2)
Total		80(100)	62(100)	67(100)	60(100)	269(100)

<Table 7> Perception of Stimuli's Occupation in Red Chima and Different Jogori Colors

		frequency(%)				
Occupation	Color	Y ^T	R	G ^T	PB	Total
		R	R	R	R	
Housewife		16(25.8)	14(17.5)	16(26.7)	13(21.0)	59(22.3)
Professional		11(17.7)	24(30.0)	12(20.0)	12(19.4)	59(22.3)
Hostess		7(11.3)	15(18.8)	11(18.3)	15(24.2)	48(18.2)
White collar		1(1.6)	3(3.8)	6(10.0)	5(8.1)	15(5.7)
Self-management		2(3.2)	3(3.8)	-	4(6.5)	9(3.4)
Blue collar		-	2(2.5)	-	1(1.6)	3(1.1)
Student		8(12.9)	6(7.5)	6(10.0)	3(4.8)	23(8.7)
Jobless		9(14.5)	4(5.0)	6(10.0)	-	19(7.2)
Artist		4(6.5)	6(7.5)	2(3.3)	3(4.8)	15(5.7)
Other responds		4(6.5)	3(3.8)	1(1.7)	6(9.7)	14(5.3)
Total		62(100)	80(100)	60(100)	62(100)	264(100)

^T : traditional color combination

<Table 8> Perception of Stimuli's Occupation in Green Chima and Different Jogori Colors

		frequency(%)				
Occupation	Color	Y	R	G	PB ^T	Total
		G	G	G	G	
Housewife		25(41.0)	14(22.6)	24(30.0)	14(23.3)	77(29.3)
Professional		5(8.2)	11(17.7)	10(12.5)	15(25.0)	41(15.6)
Hostess		6(9.8)	11(17.7)	13(16.3)	6(10.0)	36(13.7)
White collar		6(9.8)	4(6.5)	10(12.5)	5(8.3)	25(9.5)
Self-management		1(1.6)	4(6.5)	7(8.8)	3(5.0)	15(5.7)
Blue collar		-	3(4.8)	1(1.3)	1(1.7)	5(1.9)
Student		1(1.6)	5(8.2)	5(6.3)	1(1.7)	12(4.6)
Jobless		6(9.8)	4(6.5)	3(3.8)	3(5.0)	16(6.1)
Artist		6(9.8)	3(4.8)	2(2.5)	3(5.0)	14(5.3)
Other responds		5(8.2)	3(4.8)	5(6.3)	9(15.0)	22(8.4)
Total		61(100)	62(100)	80(100)	60(100)	263(100)

^T : traditional color combination

purple blue with hostess(Table 7).

In green chima ensembles, yellow jogori wearers are perceived as a housewife more than any other color jogori wearers, red jogori as a hostess, purple blue as a professional(Table 8).

Among purple blue chima group, yellow jogori wearers have more tendency to be perceived as a housewife more than any other color, red jogori as a professional or a hostess,

however green jogori wearers show less tendency to be perceived as professional or housewife than red or purple blue jogori wearers (Table 9).

Jogori color effects are more dominated than chima color on occupation perception : yellow jogori is strongly associated with a housewife, red jogori with hostess, purple blue with hostess or professional, but green jogori give the mixed

< Table 9 > Perception of Stimuli's Occupation in Purple Blue Chima and Different Jogori Colors frequency(%)

Occupation \ Color	Y PB	R PB	G PB	PB PB	Total
Housewife	27(44.3)	12(19.7)	17(28.3)	21(26.3)	77(29.4)
Professional	5(8.2)	15(24.6)	10(16.7)	21(26.3)	51(19.5)
Hostess	5(8.2)	13(21.3)	4(6.7)	9(11.3)	31(11.8)
White collar	5(8.2)	2(3.3)	5(8.3)	4(5.0)	16(6.1)
Self-management	3(4.9)	2(3.3)	4(6.7)	3(3.8)	12(4.6)
Blue collar	3(4.9)	-	1(1.7)	2(2.5)	6(2.3)
Student	5(8.2)	1(1.6)	4(6.7)	1(1.3)	11(4.2)
Jobless	3(4.9)	3(4.9)	4(6.7)	2(2.5)	12(4.6)
Artist	1(1.6)	4(6.6)	3(5.0)	10(12.5)	18(6.9)
Other responds	4(6.6)	9(14.8)	8(13.3)	7(8.8)	28(10.7)
Total	61(100)	61(100)	60(100)	80(100)	262(100)

impression according to the matching chima colors.

For a famous traditional color combination ensemble, such as, yellow jogori and red chima set for unmarried young woman, the wearer give impression of student or jobless more than any other color ensemble, however, for other traditional color sets do not clearly demonstration color stereotyping on occupation perception as on the age perception. And give the mixed impressions, and the result agree with Erwin et al's study(1961) which show color association and its relationship with cultural norms give the subjective unsystematic color stereotyping.¹⁴⁾

V. Conclusion

The color differences in a traditional Korean costume result in different color images of the ensemble wearers : In mono-color ensembles, the color image of yellow is associated with bright, red and purple blue with strong, green with cool, and gray with dark. Color combination effects of the bi-color ensembles, can be divided into 3 categories; jogori color effect, chima color effect and jogori and chima interaction effect, but

jogori color effect is more dominated than chima color or interaction effects on color image perception.

The perceived age of ensemble wearers are related to the ensemble color and color combination. In mono-color set, red ensemble give the youngest look while gray give the oldest look. For bi-color ensembles, chima colors have similar power to jogori colors on the perception of wearer's ages.

The ensemble colors do not give accurate distinction on the perception of the color images and ages.

In 3 most famous traditional color combination sets, such as, yellow jogori and red chima, green jogori and red chima, and purple blue jogori and green chima, color stereotypings on age perception are clearly existed in young generation, however the color stereotypings on wearer's occupation perception are not clearly existed expect yellow jogori and red chima ensembles.

On conclusion traditional color stereotyping still partially existed among young generation, and, at the same time colors and color combination in wearer's ensembles affect the wearer's image and theses points the result support color

¹⁴ Ervien et al, *op. cit.*

stereotyping theory and color vision theory, however, in understandably color effects, it is very important to differentiate between cultural stereotyping effect and true biological color responses which should be declared in further researches.

Comparing to the total number, the responses to the open-ended questionnaire was not sufficient and this is a limitation of the study. Since colors play an important role on perception process, researches on color image and color stereotyping of other clothing categories would be necessary to understand the color effects on quality perception of apparel ensembles.

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