

IMAGE CLOTHING AS A PERCEPTUAL COMPONENT OF CLOTHING DESIGN

Svetlana Kuleshova, Alla Slavinska, Oksana Zakharkevich, Galina Shvets

Khmelnytskyi National University, Ukraine

kuleshova_lana@ukr.net

ABSTRACT: In the paper image clothing is described as a result of interaction of person's coloring and psychological features of person. The main idea of the article is that every person has a unique pattern of body coloring and also particular preferences for color that relate to their temperament and past experiences. Contemporary study of four classical temperaments in the approaches of image clothing and selecting colors is applied in the work. Authors improved the incidence matrixes that show the relationships between two classes of objects: first one shows the relationship between clothing colors and personality; and the second one is about to identify the best color palette for person's body coloring.

Key words: consumer, psychological comfort, coloring, temperament, image clothing, perception

1. INTRODUCTION

Everybody want to look beautiful, bright and stylish at all times of the year, but sometimes it's not easy to find perfect clothing color combinations. Managing the impact of color on person's image is smart considering that color is one of the first things noticed about a person, particularly from a distance. Each hue has a different psychological effect, and there is a specific psychological reaction to each color.

The problem of image clothing that was described as problem of the psychological comfort of the clothes can be traced back to the works [23, 24], as well as works [13, 22]. However it is often attributed to an impressive approach to designing clothes that was described in [10], and in the further research papers [11, 12] that are devoted to the same problem of designing clothing according to requirements of individual person image. In the work [16] such a study was extended in order to solve the problem of harmonization of the clothes with account of person features.

Recently psychological comfort and harmonization of clothes is associated with the term of aesthetic quality of garment. Particularities of evaluation of aesthetic garment quality were considered in [17]. From these works an inference of necessity to take into account consumer requirements to clothes could be made.

Nowadays a hierarchy of modern consumer requirements to clothes was changed: importance of psychological comfort requirements and clothes matching with the personal features increased against the background of plenty of the garments that are characterized with a good fitting on the human figure. Such changes in consumer preferences already were captured by designers.

Impressive approach to designing clothes is actively developing in Japan, in the US, in Russia. From this point clothes is not only the shell or the cover of the body, but it expresses the personality and is the "shell" to self-perception. The impressive approach allows using psychophysical research data in clothing design, as well as developing effective schemes of forecasting and demand management in apparel design.

The database that was developed in [15] provides dress designers with sets of fashionable female figures and color palettes of dress designs in a period of last few centuries. Hence, it could be used as a dataset for a psychophysical research of changes in person preferences of fashion styles during certain period.

Color related psychological studies are a phenomenon of the twentieth and twenty-first centuries. The problem of optimal color palette selection has been studied by many researchers. An overview can be found in works [5-9, 20, 25, 26]. All of authors considered color palettes in relationships with person individuality and described different aspects of using these relationships in regular person life.

In works [1, 3, 14, 21] were described basic principles of the design clothing with account of color as one of the main elements of garment composition. Particular case of using the color palette in design of garments was shown in [18, 19].

Color preference tests have been devised in [20] in order to gain useful information on how people will react to certain colors in given situations, and as a means of personality analysis. The results of the tests must be used as a basic for the image clothing. The selection of the clothing color palette must correspond to person's coloring: hair color, skin color, eye color, as well as to person's temperament. Therefore, the psychological comfort of the clothes would be achieved.

The main purpose of this research is to develop practical recommendations for image clothing based on the perceptual component of the design process.

2. METHODS

In order to represent the staging of the color selection process the flow chart of the method that is shown on the figure 1 was developed.

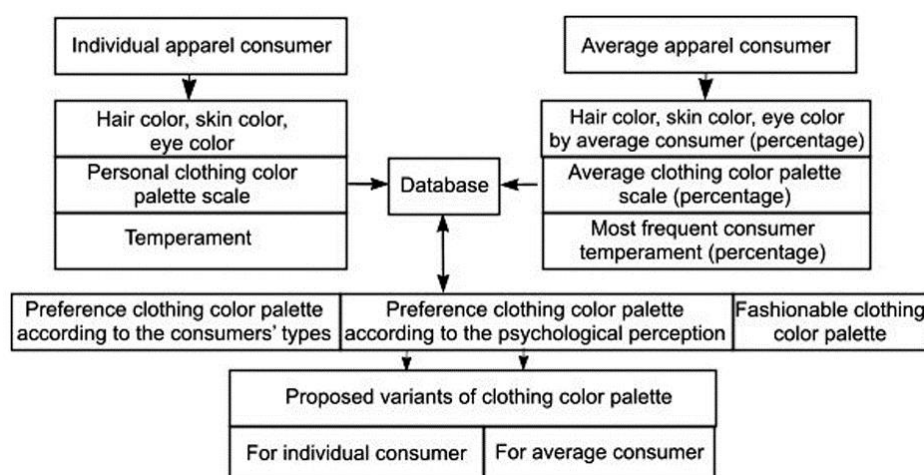


Figure 1. Structural and information scheme of selection of preference clothing color palette

3. RESULTS AND FINDINGS

As input data for the current research it is advisable to use the recommendations that were described in [5, 18, 19, 21, 26]. Lists of the recommended colors for the consumers' types were compiled and shown in the table 1.

Table 1. Typical personal coloring

Consumer type		№	Color		
			hair	skin	eye
Warm	Autumn	1	1.Coppery (red-brown)	1.Golden beige	1. Dark brown
		2	2. Golden brown	2. Peach	2. Golden brown
	Spring	3	3. Golden blond	1.Golden beige	3. Amber
		4	4. Strawberry blond	2. Peach	4. Light golden brown
		5	5. Flaxen blond	1. Golden beige	5. Hazel
Cool	Summer	6	6. Ash blond	3. Creamy	6. Blue
		7	7. Ash golden	4. Ivory	7. Gray blue
	Winter	8	8. Ash brown	5. Rosy	7. Gray blue
		9	9. Charcoal black	4. Ivory	8. Gray
Mixed	Spring-Winter	10	10. White blond	5. Rosy	7. Gray blue
	Spring-Summer	11	11. Medium blond	3. Creamy	1. Dark brown
	Winter-Autumn	12	12. Red	4. Ivory	9. Green
	Autumn-Summer	13	13. Light brown	1. Golden beige	8. Gray
	Winter-Autumn	14	14. Black	1. Golden beige	7. Gray blue

In order to clarify the personal coloring it was proposed to apply three couples of contrary characteristics of color that were described in [7-9, 25].The bipolar adjectival pairs that represent the characteristics are shown in the table 2.

Table 2. Consumers' types system

Consumer type		Number of combination	Color		
			hair	skin	eye
«Autumn» – Warm	Warm	1.1.1	1. Coppery (red-brown)	1.Golden beige	1. Dark brown
		2.2.2	2. Golden brown	2. Peach	2. Golden brown
	Deep	1.1.3	1. Coppery (red-brown)	1. Golden beige	3.Amber
		2.2.9	2. Golden brown	2. Peach	9. Green
	Soft	10.1.4	10. White blond	1. Golden beige	4.Light golden brown
		11.2.5	11. Medium blond	2. Peach	5.Hazel
«Spring» – Warm	Warm	2.5.9	2. Golden brown	5.Rosy	9. Green
		3.1.3	3. Golden blond	1.Golden beige	3.Amber
		4.2.4	4.Strawberry blond	2.Peach	4.Light golden brown
		5.1.5	5.Flaxen blond	1.Golden beige	5.Hazel
	Light	3.1.6	3. Golden blond	1.Golden beige	6. Blue
		10.1.9	10. White blond	1. Golden beige	9. Green
	Bright	13.1.6	13.Light brown	1.Golden beige	6. Blue
		2.2.9	2. Golden brown	2.Peach	9. Green
		6.3.6	6. Ash blond	3. Creamy	6. Blue
«Summer» – Cool	Cool	7.4.7	7. Ash golden	4. Ivory	7. Gray blue
		10.5.8	10. White blond	5. Rosy	8. Gray
	Light	11.5.7	11. Medium blond	5. Rosy	7. Gray blue
		8.5.6	8. Ash brown	5. Rosy	6. Blue
	Soft	13.5.9	13. Light brown	5. Rosy	9. Green
		8.5.7	8. Ash brown	5. Rosy	7. Gray blue
«Winter» – Cool	Cool	9.4.8	9. Charcoal black	4. Ivory	8. Gray
		6.5.9	6. Ash blond	5. Rosy	9. Green
		7.5.6	7. Ash golden	5. Rosy	6.Blue
		9.4.1	9. Charcoal black	4. Ivory	1. Dark brown
	Deep	14.5.6	14. Black	5. Rosy	6. Blue
		8.5.9	8. Ash brown	5. Rosy	9. Green
	Bright	9.5.6	9. Charcoal black	5. Rosy	6. Blue

Fractal principle of detailed substructure was used to represent the development and evolving of the typological system of consumers (figure 2).

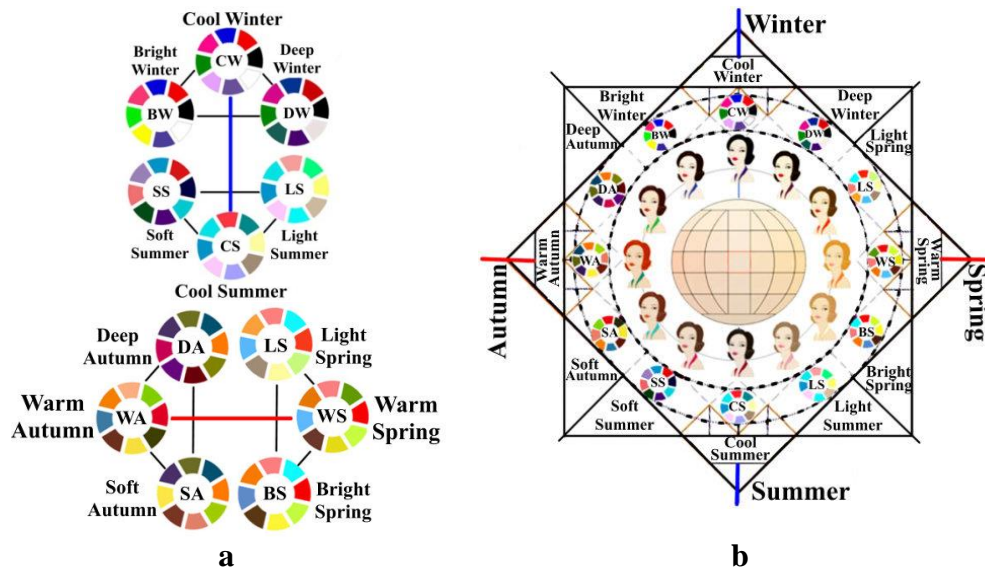


Figure 2. Fractal space of the consumers' types system: a) variants of clothing color palette according to consumers' types; b) fractal graphic model in color interpretation

With the base on the modern computer technology and taking into account results of work[6] the CMYK color model (C – Cyan, M – Magenta, Y – Yellow, K – Black) was used in order to represent each color in the table 3. The value of each color tone for the real materials samples might be obtained by any raster graphics editor (for example, GIMP). Thus, the selection of the color palette for the person coloring could be done even through online-catalog with images of the materials samples. Also it would be useful in personal online shopping.

Table 3. Recommended clothes colors for consumers' types (monochrome harmony)

Type		Chromatic, %								Achromatic, %
		CMYK	red	green	blue	yellow	violet	natural		
Consumer type	COOL	Winter	C	10...40	67...91	30...100	6...11	30...100	0...35	0
			M	30...100	5...39	2...88	6...19	25...100	0...20	0
			Y	0...70	50...74	0...31	69...89	0	0...20	0
			K	0...10	0...39	0...17	0	15...55	0...100	0...100
		Summer	C	0...36	35...84	30...100	12...20	25...100	0...30	0...35
			M	40...100	0...18	2...88	3...8	15...90	5...40	0...20
			Y	0...70	19...60	0...31	29...62	0	0...55	0...20
			K	0...40	0...3	0...17	0	0...55	0...55	10...75
	WARM	Autumn	C	0	88...59	50...100	10...13	40...80	0	10...40
			M	40...100	18...35	0...47	19...47	80...100	60...100	5...40
			Y	35...95	75...100	15...47	77...91	0	80...100	20...90
			K	0...40	15...30	0...27	0	25...55	25...65	5...40
		Spring	C	0	27...86	31...84	2...8	20...80	0	5...35
			M	45...100	0...24	1...28	9...15	25...100	7...60	5...20
			Y	25...80	61...100	2...32	55...88	0	12...100	20...55
			K	0	0...12	0...2	0	0...45	0...65	5...30

An adequate choice of clothes color palette must be determined by the psychological characteristics of the certain individual. Colors were used in psychological methods for a long time now. Goethe was the first who systematically studied the physiological effects of color, and his observations on the effect of opposed colors led him to a symmetric arrangement of his color wheel that was called "Rose of

temperaments”[2]. Such color wheel shows the psychological effect of each color. The “Rose of temperaments” matching six colors to human character traits grouped in the four temperaments: choleric, sanguine, melancholic, and phlegmatic. On the figure4 modern interpretation of “Rose of temperaments” is represented.

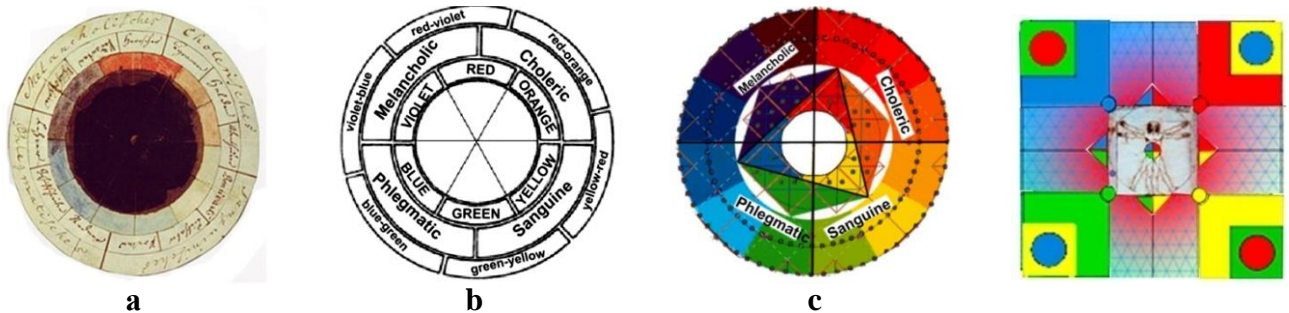


Figure 3. The "Rose of temperaments" by Goethe:a) original picture[2]; **Figure4. The 4-color person by Max Luscher** b) modern achromatic interpretation;c) color interpretation

Dr. M. Luscher believed that colors had an emotional value and that a person’s reaction to color revealed his or her basic personality traits. Hence, the conception of "The 4-Color Person" that was proposed by M. Luscher uses a color test as a method. The conception is based on the doctrine of temperaments and psychological color theory. At the figure 4 one of the representations of the conception is shown. In this way Max Luscher correlated colors and emotions. Each color has been identified as that that yields by certain properties. Luscher divides four fundamental colors into the following fundamental categories[20]:

Red –Self confidence. Activity, drive and the reaction to challenges.

Yellow –Development. Attitude of anticipation, attitude towards future development and towards new encounters.

Green –Self-respect. Inner control of willpower and the capacity to enjoy.

Blue –Contentment. Feeling of belonging, the inner connection and the relationship to one’s partner.

Thus, each type of temperament must be related to respective color as follows: red – choleric, yellow – sanguine, green – phlegmatic, blue – melancholic.

Eysenck initially conceptualized personality as two, biologically-based categories of temperament: Extraversion/Introversion and Neuroticism/Stability[2]. Two dimensions or axes (extraversion-introversion and emotional stability-instability) define four quadrants.

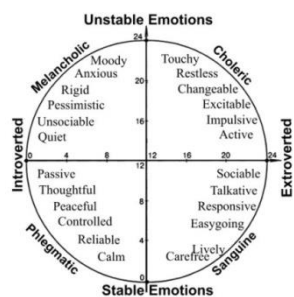


Figure 5. Hans Eysenck: circular diagram about Eysenck's personality types

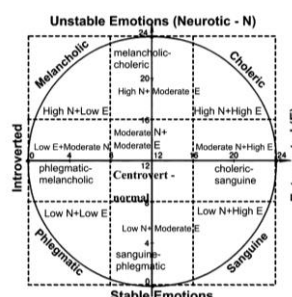
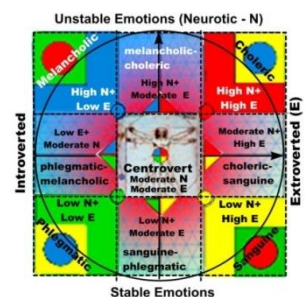


Figure6. Integrating concepts of Goethe, Luscher and Eysenck



In order to define personality type simultaneously with color preferences and recommended color palette the graphical model of temperaments space was developed. The graphical model of temperaments space includes "Rose of temperaments" by Goethe, Circular Diagram about Eysenck's Personality Types, "four psychological primary colors" by dr. Max Luescher, and their relationship to different traits (all of them were described in [2]), as well as Leonardo da Vinci's Circle and Square proportional for his drawing of Human Proportions [14], and Sierpinski carpet.

The represented schemes were considered and compared in order to determine the similarities in the graphical models and in the fractal structures of them. Hence, it was assumed that in the further development of the graphical model it is possible to apply fractal structures in the role of determinative mechanism of image clothing. As it shown on the figure 7, implementation of the fractal structure allows to extension the bounders in the current research as well as it gives an opportunity to precise its internal particularities.

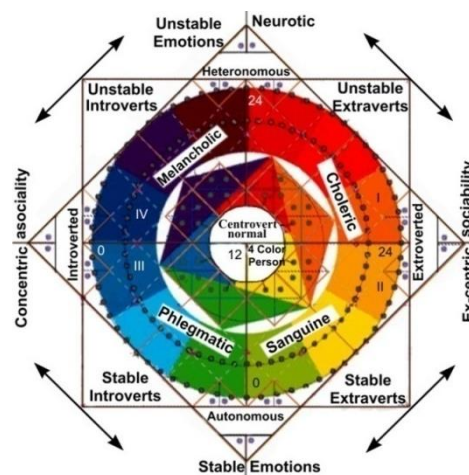


Figure 7. Fractal space of the temperaments

The best color palette must be identified by the rules that are formalized and represented in the form of the incidence matrix in the table 4.

Table 4. The incidence matrix of the best color palette for person's body coloring

Dress colors		Consumer type													
		Warm					Cool					Mixed			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Chromatic	Red	1	1	0	0	1	1	1	1	1	0	0	0	1	0
	Yellow	0	0	1	0	0	0	0	0	0	0	1	1	0	1
	Brown	0	1	1	0	0	0	1	0	0	0	1	1	1	1
	Green	1	1	1	1	1	1	1	1	1	1	1	0	1	1
	Blue	1	0	1	1	1	1	1	1	1	1	1	1	1	1
	Violet	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Achromatic	White	1	1	1	1	1	0	1	1	1	1	1	1	1	1
	Black	1	1	1	1	1	0	1	1	1	1	1	1	1	1
	Grey	1	1	1	0	1	0	0	1	1	1	1	1	1	1

The Big Five personality traits that were described in [4] were used in order to select the clothing color palette according to the consumers' types and their temperaments. The Five Factor Theory presumes follows color preferences:

1. Openness to experience: (inventive/curious vs. consistent/cautious):

Expressivity –red, yellow, violet. Practical –green, blue, grey, black.

2. Conscientiousness (efficient/organized vs. easy-going/careless):

Organized –green, blue, grey. Impulsive –red, yellow, violet.

3. Extroversion (outgoing/energetic vs. solitary/reserved):

Outgoing –red, yellow. Reserved –green, blue, violet, grey, black.

4. Agreeableness (friendly/compassionate vs. analytical/detached):

Detached – green, violet, grey, black. Friendly –red, yellow, blue.

5. Neuroticism (sensitive/nervous vs. secure/confident):

Nervous – yellow, brown, blue, violet. Stable –red, green, grey.

The relationships between clothing colors and personality traits are represented in the incidence matrix (table5).

Table5. The incidence matrix of the relationships between clothing colors and personality traits(for sanguine)

Dress colors	Personality traits									
	Openness to experience		Conscientiousness		Extroversion		Agreeableness		Neuroticism	
	Expressivity	Practical	Organized	Impulsive	Outgoing	Reserved	Detached	Friendly	Nervous	Stable
Red	1	0	0	0	1	0	0	1	0	1
Brown	0	0	0	0	0	0	0	0	0	0
Yellow	1	0	0	0	1	0	0	1	0	0
Green	0	0	1	0	0	0	0	0	0	1
Blue	0	0	1	0	0	0	0	1	0	0
Violet	1	0	0	0	0	0	0	0	0	0
Grey	0	0	1	0	0	0	0	0	0	1
Black	0	0	0	0	0	0	0	0	0	0

As it was previously described in [20], colors have specific meanings. Color is not just about aesthetics –it also communicates specific information. Color meanings are grounded in two basic sources: personal experience forms subjective color meaning, and social communicative experience forms objective color meaning. Thus, in order to achieve psychological comfort of the clothes that is in harmony with person’s body coloring and personality traits, the image clothing should be complemented with the information of the incidence matrix for the particular temperament as well as the information in the table 6.

Table 6. Effects of color on behavior and character of the individual (fragment)

Temperament (internal color)	Psychological features (traits of character)	Recommendations for the external colors	
		warm	cool
Sanguine person (yellow)	Expressivity, Organized, Outgoing, Friendly, Stable	They reduce the level of consciousness. Hence, they are not recommended because it means increase of the “Spontaneity”: ex-centric, active, projective, aspiring, expectancy, exhilaration	Cool colors help to increase the attention. That’s why they are recommended.

The graphical interpretation of the connections between the components of color dress creation is the embodiment of the methodology of image perception. This is a step towards unraveling the science of relationships between "image" and "clothing".

Any capsule dress is the combination of triad blocks that are follows: Image ↔ Color ↔ Impression. Triad blocks are shown on the figure 8.

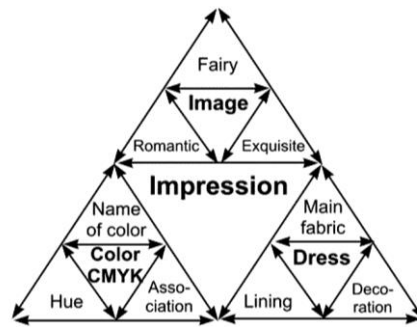


Figure8. Triads of the image formation

4. RECOMMENDATIONS

The first stage of image clothing is definitely selection of the recommended color palette. Besides that, color palette must be related to person’s coloring and coordinated with personal type. In order to achieve such purposes simultaneously the graphical fractal model that shows all temperaments and their color preferences must be used. The incidence matrixes are the base for choosing of the best color palette.

4.1. The example of selection of the clothes color palette

According to the recommendations for the colors of consumers’ types, which were described in [5, 7-9, 18, 19, 21, 25], we compiled the lists of the recommended colors for the specific consumer color type that called “Cool” (table 7, table 8).

Table 7. Personal coloring for the consumer

Consumer type	Hair color	Skin color	Eye color
Cool– Summer	Ash blond	Creamy	Blue

Table 8. Recommended colors for the consumer’s type “Cool”

Consumer type	Color model	Fashionable colors				Recommended colors for the consumers’ types, %		Recommended fashionable colors for the consumers’ types, %			
		pink		gray		pink	gray	pink		gray	
Summer	C	10	0	0	15	0...35	0	10	20	0	0
	M	20	20	0	10	20...80	0	20	40	0	0
	Y	0	10	0	0	0...30	0	0	0	0	0
	K	0	0	10	0	0	0...30	0	0	10	20




Results of the study could be shown in the tables that include recommendations for using of the combinations of preferred color palettes. The example of such recommendations for the combinations of three colors that are implemented in women’s dresses presented in the table 9.

According to the psychology of coloring with taking into account purposes of image clothing and particular person coloring, as well as recommendations for using of the combinations of preferred color palettes a dress capsule that is shown in the table 10 is formed. Obviously, that such a capsule can be formed for each color palette as well as recommendations for using combinations of its colors.

Table 9. White, gray and pink in clothing

Group of hues	Color	Association	Alternative name	Tint percentage in color %				Impression	Recommended colors
				C	M	Y	K		
Fairy image									
Light hues	White	clean, breezy, festive	Alabastrine	00	00	00	00	Light hues are light and carefree. They radiate purity, harmony and perfection. They combine minimalism, calm and nobility.	<u>Dress:</u> white, light and bright colors look authoritative. <u>Accessories:</u> black, neutral and dark colors highlight conservatism.
	Pearl gray	elegant, romantic, exquisite	Chalky	00	00	00	10		
	Silvery	serious, strong, decisive	White clouds, White roses, White lilies	00	00	00	15		
Romantic image									
Grey hues	Mousey	restrained, balanced, passive	Zircon, Steel, Light-Gray	00	00	00	20	Grey hues are elegant, tranquil, exquisite. Gray is full of dignity, it is elegant and refined. This is a true noble of the colors.	<u>Dress:</u> white and pastel colors create an elegant image. <u>Accessories:</u> gray and unsaturated colors highlight sophistication.
	Gray	sturdy, costly, noble	Granitic, Pebbles, Gainesboro	00	00	00	25		
	Coal	rich, provoking, luxurious	Silver, French grey	00	00	00	30		
Exquisite image									
Light hues	Cherry	charming, tender, pretty	Pale dogwood, Cherry pink, Japanese pink	10	20	00	00	Light hues of pink feminine, romantic and soft. They are associated with tenderness, charm, charming and innocent game of flirtation.	<u>Dress:</u> white, silver, light pink, <u>Accessories:</u> neutral and low-saturated pink color emphasize sophistication and femininity.
	Lavender	exquisite, female, romantic	Lavender pink, Rose quartz, Medium pink	00	45	30	00		
	Rose	fine, charming, chic	Carnation, Persian pink, Persian Rose	35	80	00	00		

Table 10. Basic color of dress

Image	Fairy	Romantic	Exquisite
Colors	French grey, pale dogwood	Cherry blossom pink, silver	Japanese pink, zircon
Sketch			
Impression	luxurious, festive, solemn, regal	female, fine, delicate	exclusive, elegant, charming

The next logical step to do is to collect a database of fabric samples that can provide desired image of outfits. Input data is the information from the online catalogs and scanned images of real fabrics

samples. The database is useful for the 3D simulation that completes the process of image clothing. Figure 9 shows the example of database that was used for developing the collection of outfits entitled “Miss Dior” (figure 10).



Figure9.Database of fabric samples for the collection of women's outfits



Figure 10.The collection of women's outfits that called «Miss Dior»

5. CONCLUSION

In a conclusion can be said that the image clothing is basically the foundation of any designer’s work. The triad blocks “Image ↔ Color ↔ Impression” were used to demonstrate the perceptive component in the process of image clothing itself. Hence, all of the triad blocks were considered as interrelated parts of the dress that provides harmony to the person’s appearance and highlights his or her body coloring.

6. ACKNOWLEDGMENT

The results shown in the paper were presented on International Conference on Research in Education and Science (ICRES), May 19-22, 2016, Bodrum, Turkey.

7. REFERENCES

[1]. Bily-Czopowa, M., & Mierowska, K. The design and modification of women's light clothing. Warsaw, WSiP, 1986.

- [2]. Boeree, G. Personality Theory: A Biosocial Approach. Psychology Department Shippensburg University. 2009. Retrieved May 7, 2016 from <http://webspaces.ship.edu/cgboer/pttemp.html>
- [3]. Cheremnykh, A. I. The fundamentals of art design of women clothes. Moscow, Legprombytizdat, 1983.
- [4]. Costa, P. T., Jr. & McCrae, R. R. Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) manual. Odessa, FL: Psychological Assessment Resources, 1992.
- [5]. Freer, A. How to Get Dressed: A Costume Designer's Secrets for Making Your Clothes Look, Fit, and Feel Amazing. New York, Ten Speed Press, 2015.
- [6]. Gill, M. Color Harmony: Jewels. Rockport Publishers, 2000.
- [7]. Henderson, V., & Henshaw, P. Colour Me Beautiful: Change Yours Truly, Look Change Your Life. London, Hamlyn, 2010.
- [8]. Henderson, V., & Henshaw, P. Colour Me Beautiful: Colour me confident. London, Hamlyn, 2006.
- [9]. Jackson, C. Color Me Beautiful. New York, The Random House Publishing Group, 1987.
- [10]. Korobtseva, N.A. Designing clothes: an impressive approach: monograph. Moscow, GNOME and D, 2001.
- [11]. Korobtseva, N.A. Formation of individual image and design of clothes: current problems and research directions. Imageology 2005: phenomenology, theory, practice. Proceedings of the Third International Symposium. Moscow, 2005, pp. 323-325. Retrieved June 5, 2015 from <http://imageology.ru/content/view/46/30/>
- [12]. Korobtseva, N.A. Image clothing, costume, clothes, to the question of terminology. Imageology 2006: actual problems of social image-making: Proceedings of the Fourth International Symposium on imageology. Moscow., 2006, pp. 145-148. Retrieved June 5, 2015 from <http://www.sorinana.ru/imagedesign.html>
- [13]. Korobtseva, N.A., & Petrova, E.A. Clothes as an object of psychological research. Clothing industry, Vol. 4, 1998, pp. 36-37.
- [14]. Kozlova, T.V. The fundamentals of the theory of design costume. Moscow, Legprombytizdat, 1988.
- [15]. Kuleshova, S.G. Database design of fashion's graphic images in XX-XXI centuries. Herald of Khmelnytskyi national university, No. 3, 2013, pp. 148-154.
- [16]. Kuleshova, S.G. Development of the design principles of harmonious appearance of the consumer by visualization of the virtual system "human-clothing". Interuniversity collection "Scientific notes", No. 34, 2011, pp. 148-153.

[17]. Kuleshova, S. G., & Slavinska, A. L. Method of complex assessment of aesthetic quality in clothes design. In Shalapko Y., Wyszowska Z., Musial J., Paraska O, Study of problems in modern science: new technologies in engineering, advanced management, efficiency of social institutions. Monograph. Bydgoszcz: Poland, 2015, pp. 318-327.

[18]. Kuleshova, S. G., Slavinska, A.L., Zakharkevich, O. V., & Shvets, G. S.Evaluation of the level of harmonisation of clothes, International Conference on Research in Education and Science. Proceeding book,2016, pp.1544-1552. Bodrum: Gaziantep University.

[19]. Kuleshova, S. G. Color in the art of designing clothes: study guide. Khmelnytskyi: KhNU, 2016.

[20]. Luscher, M. The 4-Color Person. New York, Simon and Schuster, ISBN 0-671-24232-6. 1977.

[21]. Medvedeva, T. V. The costume's design. Moscow, FORUM: INFRA, 2005.

[22]. Petrova, E.A., & Korobtseva, N.A. Evaluation of psychological clothes comfort. Moscow, RIO MGTA, 1996.

[23]. Radeloff, D. J. Role of color in perception of attractiveness. Percept, and Mot. Skills. Vol. 71, No. 1, 1990, pp. 151-160.

[24]. Shim S., Kotsiopoulos A., &Knoll D. S. Short, average-height, tall, and big men: Body-cathexis, clothing and retail satisfactions, and clothing behavior. Percept, and Mot. Skills, Vol. 70, No. 1, 1990, pp. 83-96.

[25]. Spillane, M. &Sherlock, Ch. Color Me Beautiful's Looking Your Best: Color, Makeup and Style.Lanham, Maryland, Madison Books, 1995.

[26]. Webster, R. Color magic for Beginners. Minnesota, Llewellyn Publication Woodbury, 2006.