

Available online at www.sciencedirect.com**SciVerse ScienceDirect**

Procedia - Social and Behavioral Sciences 50 (2012) 1018 – 1032

Procedia
Social and Behavioral Sciences

AcE-Bs 2012 Bangkok
ASEAN Conference on Environment-Behaviour Studies,
Bangkok, Thailand, 16-18 July 2012

Cosmetic Packaging Design: A Case Study on Gender Distinction

Siripuk Ritnamkam* and Nopadon Sahachaisaeree

King Mongkut's Institute of Technology Ladkrabang, Chalongkrung Road, Ladkrabang, Bangkok, 10520, Thailand

Abstract

This research aims to investigate a distinctive perceptual response between young males and females on graphical and packaging appearance leading to their buying decision. The research endeavors to reveal distinctive graphical and formal design factors determining packaging preferences in accordance with the level of cognitive and affective sensory between genders. The research found that shape, colour, element and principle correspond to young purchasers' gender difference. Research tools comprise distinctive visual stimulus set embedded with the contradictory factors, and questionnaires set to draw perceptual reactions. Sampled respondents are drawn from 19-23 graduate and undergraduate students from Department of Industrial Design and Education.

© 2012 Published by Elsevier Ltd. Selection and peer-review under responsibility of the Centre for Environment-Behaviour Studies (cE-Bs), Faculty of Architecture, Planning & Surveying, Universiti Teknologi MARA, Malaysia
Open access under [CC BY-NC-ND license](http://creativecommons.org/licenses/by-nc-nd/4.0/).

Keywords: Packaging design; cosmetic; gender differences; formal design; marketing

1. Introduction

The current mass marketing approach attempts to attract a wide range of customers, which strategy can hardly succeed due to the existing fierce product competition, and it is due to the fact that a new generation of consumers hesitates to make decision until their genuine needs are proved to be met. As a result, in marketing, customers are to be broken down into clusters of specific groups and different strategies are assigned to each of the groups to gain targeted responsive behavior. Sexual marketing, for instance, is among existing marketing strategies, which offers alternative to targeted gender, especially in

* Corresponding author. Tel.: +6687-8698277
E-mail address: siripuk_pum@hotmail.com

the realm of cosmetic products. Nivea body lotion, for example, has long been marketed without taking gender differences into consideration until recently. The product's company found that sale figure of men's body lotion grew double compared with that of the females'. Obviously, it is worthwhile to take gender differences as one of the sale strategies to attract both genders as two different markets. According to Manager Weekly newspaper's report on Nivea body lotion, the metro-sexual trend continued rising, making the boundaries of gender products more distinct. Male users of such product grow more than 100%. This indicates that the market of the product is truly of male buyers', equally to that of females'. Packaging design is also a crucial factor reflecting the products' content and identity, which could draw the potential purchaser's attention.

Gender perceptual differences on packaging design are thus the prime attention of this research in terms of cognitive and affective discernments of merchandize. Taking cosmetic packaging design as a case study, this research attempts to elucidate the determinant of design elements such as color, formal design, element and principle, on gender differences. It aims to use cosmetic as a case study to test the difference of preference on packaging design across genders. And finally, the research attempts to derive a set of different design guidelines for packaging design for both males and females.

1.1. Hypothesis of the research

The research hypothesizes that design elements and principles have a profound impact on gender differences, especially on their purchasing decision.

2. Theoretical background

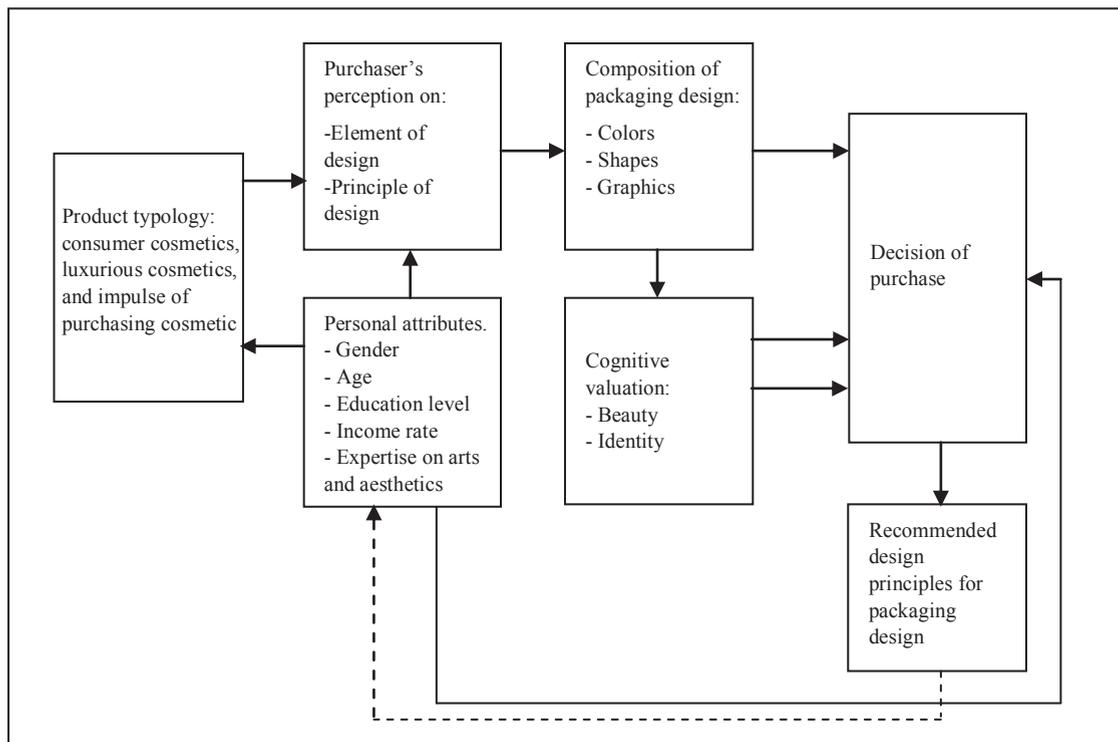


Fig.1. Theoretical framework

This research bases its theoretical foundation on the mainstream Gestalt visualization and perception, aesthetic perception, principle of packaging design, gender differences, and cosmetic packaging design principles. The Gestalt visualization and perceptual theory explains an integration of design elements, which collectively forms complete imagery. The theory also clarifies the visualization process of human eyes which gather information in accordance with the enclosure, similarity, and proximity property of space and composition. Not only is the whole of design property perceived simultaneously, the aesthetic aspects of design perception is also recognized. In line with the Gestalt theory, the human nature of perception, cognition, and recognition processes are also part of the visual perception procedure, subjectively or objectively. In this light, taxonomy of identity such as class, positioning, and gender can be explained by means of presumption as such, and can be applied to the domain of graphical or advertisement design as well.

An element in packaging design, on the other hand, comprises dots, line, plane, shape, and color. The specific process for designing should conform to the principles of design, which comprises the doctrines of compositional arrangements such as harmony, proportion, balance, rhythm and repetition, unity emphasis, and contrast. Derived from the aforementioned theoretical foundation, the research thus proceed to its procedural steps by means of theoretical framework formation.

3. Research Methodology

In order to derive a design criteria for cosmetic packaging design—from the differentiation of packaging perception and preference across genders—the research intends to conduct a stimuli-response type of inquiry on both functional and aesthetic/attractiveness aspects of packaging design towards purchasing decision on both genders. Six steps of research design were planned as follows;

- Step 1: Investigation of differentiation in aesthetic preferences across gender by means of a pictorial-stimuli—such as color, and formative design—and questionnaire-response approach on a group of undergraduate s were conducted in 3 universities on both art and non- art majors.
- Step 2: Attempts in utilizing the collected data was taken from step1 to obtain a set of relevant variables for the steps that follow.
- Step 3: With the DELPHI technique, a set of different packaging pictorial stimuli—with different color, formal design, element and principle—which were hypothesized as being able to attract both sexes differently.
- Step 4: Testing of the research tools against the designated target group for perceptual response.
- Step 5: By means of statistical package, the collected data are organized and designed.
- Step 6: A set of packaging design criteria were used in an analysis to find out about patterns that distinctively attract male and female target groups.

3.1. Sampling frame

Since potential purchasers of cosmetic product are teenagers, 200 undergraduate students, aged 19- 23 years old (of equal proportion on gender) were randomized from three fields of study—namely, industrial education, fine arts, and technical linguistic studies as research samples to gain a wide variety of target groups being with and without art expertise within the designated age range of the sexes.

3.2. Research tools

Two sets of questionnaires and pictorial stimulus are designed to solicit response from the sampled respondents on two aspects, namely, the aesthetic preference, and the packaging formative design

perceptions. Both sets of questionnaires comprises two sections: the personal attributes—such as gender, age, education level, income and expertise on arts—and the responsive scaling against the pictorial stimuli. The second part of the first questionnaire consists of questions responding to the first set of pictorial stimuli which focus on the general artistic aesthetic perception. The second part of the second set of questionnaire involves questions regarding different forms of packaging design for both sexes. Both of the pictorial stimuli are also designed in accordance with variables derived from theoretical background and the results from the DELPHI methods.

3.3. *Data collection procedure*

The first questionnaire was applied in the sampling groups to derive the first set of information through which the second set of questionnaire is based. A simple random sampling technique is applied to select a 200 samples from the designated sampling frame. Information was thus collected by using both sets of questionnaires on two different survey schedules at King Mongkut’s Institute of Technology Ladkrabang.

3.4. *Data analysis*

Collected information is analyzed by using the SPSS statistical package to obtain associative and correlative information regarding different types of design features and genders to draw final recommendation with regard to design criteria for specific gender.

3.5. *Research experiment*

This research is to take factors of packaging design which is conceptual variation analyzing to operation variable in order to apply to use in research. From reviewing literature, the researcher analyze 4 factors of packaging design which are geometrical shape, color, shape and elements and principles. The details of each factors are as follow.

Table 1. Showing indicators of geometrical shape

No.	factors	indicators	No.	indicators
1.	geometrical shape	 cubic shape	5.	 A horizontal rectangle
2.		 trapezoid shape	6.	 pyramid shape
3.		 vertical rectangle	7.	 free shape
4.		 cone shape	8.	 sphere shape

Table 2. Showing indicators of shape

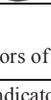
No.	factors	indicators	No.	indicators
1.	shape	 square shape with wide on top pump bottle	9.	 round spray bottle
2.		 free shape curved and rounded pump bottle	10.	 round shape concave neck spray bottle
3.		 free shape with long concave flip bottle	11.	 long rounded roller bottle
4.		 square shape with central- rounded flip bottle	12.	 roller round and short cover bottle
5.		 short round cone bottle	13.	 square shape with spray cover bottle
6.		 long round cone shape bottle	14.	 free shape spray bottle
7.		 square shape with wide on top flip bottle	15.	 polyhedron pot
8.		 free shape with long concave flip bottle	16.	 sphere pot

Table 3. Showing indicators of packaging color

No.	factors	indicators	No.	indicators
1.	colour	 cool tone	4.	 contrast tone
2.		 warm tone	5.	 Nemplementary tone (black)
3.		 harmony tone	6.	 Nemplementary tone (white)

Table 4. Showing indicators of elements and principles

No.	factors	indicators	No.	indicators
1.	Element and principle	 straight line	5.	 intersect line
2.		 curve line	6.	 movement lines
3.		 symmetry shape	7.	 diagonal squares
4.		 asymmetry shape	8.	 curve shape

3.6. Questionnaire

This study is to measure respondent perception level corresponding to picture stimuli in difference factors of packaging which are attracted respondents of both sexes and in difference factor of element and principle. Research tool is questionnaire comprising 30 pictures. Semantic differential divided into 5 levels is used in this study. Respondents see those 30 pictures and distinguish between male and female representation rating 1 (represent low level of male and female) to 5 (represent high level of male and female) and 0 represent non male and female. For the convenience of investigation, prior to any inquiry stage, cosmetic products are categorized into three lines of merchandizing as follow. Consumer cosmetic products include:

- Skin cleanser products: Body cleanser product, such as shower cream; Facial cleanser product, such as facial foam.
- Skin care products: Body/ skin care product, such as body / skin lotion; Facial skin care product, such as moisturizing cream.
- Perfume and other: Fragrance agents such as deodorant.
- Hair care product: Shampoo and conditioner.
- Luxurious and impulsive cosmetics.
- Fragrance: Perfume, cologne.
- Hair treatment product: Hair gel.

Table 5. Applied semantic differentia

picture	applied semantic differential										
	male					female					
	5	4	3	2	1	0	1	2	3	4	5

4. Research findings and discussion

The research would like to study the factor of the packing image which effect the female and male in the product. The research study with target group in visual perception of geometrical shape, shape, color, and graphic. The factor in visual perception of the geometrical shape which is represented the most of female. The research found that, The geometrical shape which is represented of female ordered from most to least is a free shape cone shape and sphere shape respectively, and the result of the study show standard

deviation at 2-3 which means that respondents express the same idea. The information are shown in Table 5.

4.1. The factor in visual perception of the geometrical shape which is represented the most of male

The research found that, The shape which is represented of male ordered from most to least is the cubic shape A vertical rectangle A horizontal rectangle and trapezoid shape respectively and the result of the study show standard deviation at 2-3 which means that respondents express the same idea as shown in the Table 6.

4.2. The factor in visual perception of the geometrical shape which are not represented of female/ male

The research found that, the shape which is not represented of female and male is a pyramid shape ($X= 6.53$) and the result of the study show standard deviation at 2 which means that respondents express the same idea as shown in the Table 7 below.

4.3. The Factors for packaging design representing female by shape

This part is to testify that between male and female, how respondent have perceptual react to shape of packaging and to take the result of the study to design the shape of packaging. For comparing means, the result found that the shape of packaging showing the female arranging in ascending order are free shape curved and rounded pump bottle ($X=8.30$), free shape spray bottle ($X=7.66$), long round cone shape bottle($X= 7.29$), round shape concave neck spray bottle($X=7.29$) , and free shape with long concave flip bottle($X=7.28$). The result of the study show standard deviation at 2-3 which means that respondents express the same idea. The information are shown in Table 8.

4.4. The factors for designing perception of male packaging shape

This part of research is to testify respondents' perception of male and female to different packaging shape and to compare means. The result of the study is that shape which is represented male arranging in ascending order are free shape with long concave flip bottle($X=3.90$), long rounded roller bottle($X=4.26$), square shape with central- rounded flip bottle($X=4.57$), short round cone bottle ($X=4.91$), roller round and short cover bottle($X=5.27$), square shape with spray cover bottle($X=5.45$), round spray bottle($X=5.52$), square shape with wide on top flip bottle($X=5.53$), and square shape with wide on top pump bottle($X=5.74$). The result of the study show standard deviation at 2-3 which means that respondents express the same idea. The information are shown in Table 9.

4.5. The Factors for packaging design which is not refer to male and female packaging shape

This part are to testify that between male and female, how respondent have perceptual react to shape of packaging and to take the result of the study to design the shape of packaging. For comparison means, the result found that the shape which are not refer to male and female are polyhedron pot($X=6.95$), sphere pot ($X=6.11$) The result of the study show standard deviation at 2-3 which means that respondents express the same idea. The information are shown in Table 10.

4.6. The Factors for color packaging design representing female

In this part, the research is to testify respondents' perception of different color in male and female packaging and to compare means. The result of the study is that color which is represented female arranging in ascending order are warm tone ($\bar{X}=8.21$), complementary tone (white) ($\bar{x}=7.83$). The result of the study show standard deviation at 2-3 which means that respondents express the same idea. The information are shown in Table 11.

4.7. The Factors for color packaging design representing male

In this part, the research is to testify respondents' perception of different color in male and female packaging and to compare means. The result of the study is that color which is represented male arranging in ascending order are complementary color (black) ($\bar{X}=2.54$), cool color ($\bar{x}=2.96$), contrast color ($\bar{X}=4.03$), harmony color ($\bar{X}=4.96$). The result of the study show standard deviation at 2-3 which means that respondents express the same idea. The information are shown in Table 12.

4.8. The Factors for element and principle packaging design representing female.

This part is to testify respondents' perception of graphic in male and female packaging and to compare means. The result of the study is that element and principle which are represented female arranging in ascending order are symmetry shape ($\bar{x}=9.32$), curve shape ($\bar{x}=8.89$), symmetry shape ($\bar{x}=8.12$), curve line ($\bar{x}=7.92$). The result of the study show standard deviation at 2-3 which means that respondents express the same idea. The information are shown in Table 13.

4.9. The Factors for element and principle packaging design representing male

This part is to testify respondents' perception of graphic in male and female packaging and to compare means. The result of the study is that element and principle which are represented male arranging in ascending order are diagonal squares. ($\bar{x}=3.67$), straight line ($\bar{x}=4.08$), intersect line ($\bar{x}=4.25$). The result of the study show standard deviation at 2-3 which means that respondents express the same idea. The information are shown in Table 14.

4.10. The Factors for packaging design which is not refer to male and female in elements and principles

This part is to testify respondents' perception of graphic in male and female packaging and to compare means. The result of the study is that element and principle which are not represented male and female arranging in ascending order are movement line ($\bar{x}=6.29$). The result of the study show standard deviation at 2-3 which means that respondents express the same idea. The information are shown in Table 15.

Table 6. Factor in visual perception of arts in geometrical shape which is represented female

No.	picture	applied semantic diferential											
		Male					0	female					
		5	4	3	2	1	0	1	2	3	4	5	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	
7.	 free shape												$\bar{x} = 7.44 / SD = 2.87$
4.	 cone shape												$\bar{x} = 7.19 / SD = 2.93$
8.	 sphere shape												$\bar{x} = 7.08 / SD = 2.98$

Table 7. Factor in visual perception of arts in the geometrical shape which is represented of male

No.	picture	applied semantic diferential											
		Male					0	female					
		5	4	3	2	1	0	1	2	3	4	5	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	
1.	 cubic shape												$\bar{x} = 3.26 / SD = 2.37$
3.	 A vertical rectangle												$\bar{x} = 4.10 / SD = 2.76$
5.	 A horizontal rectangle												$\bar{x} = 4.83 / SD = 2.57$
2.	 trapezoid shape												$\bar{x} = 5.68 / SD = 3.04$

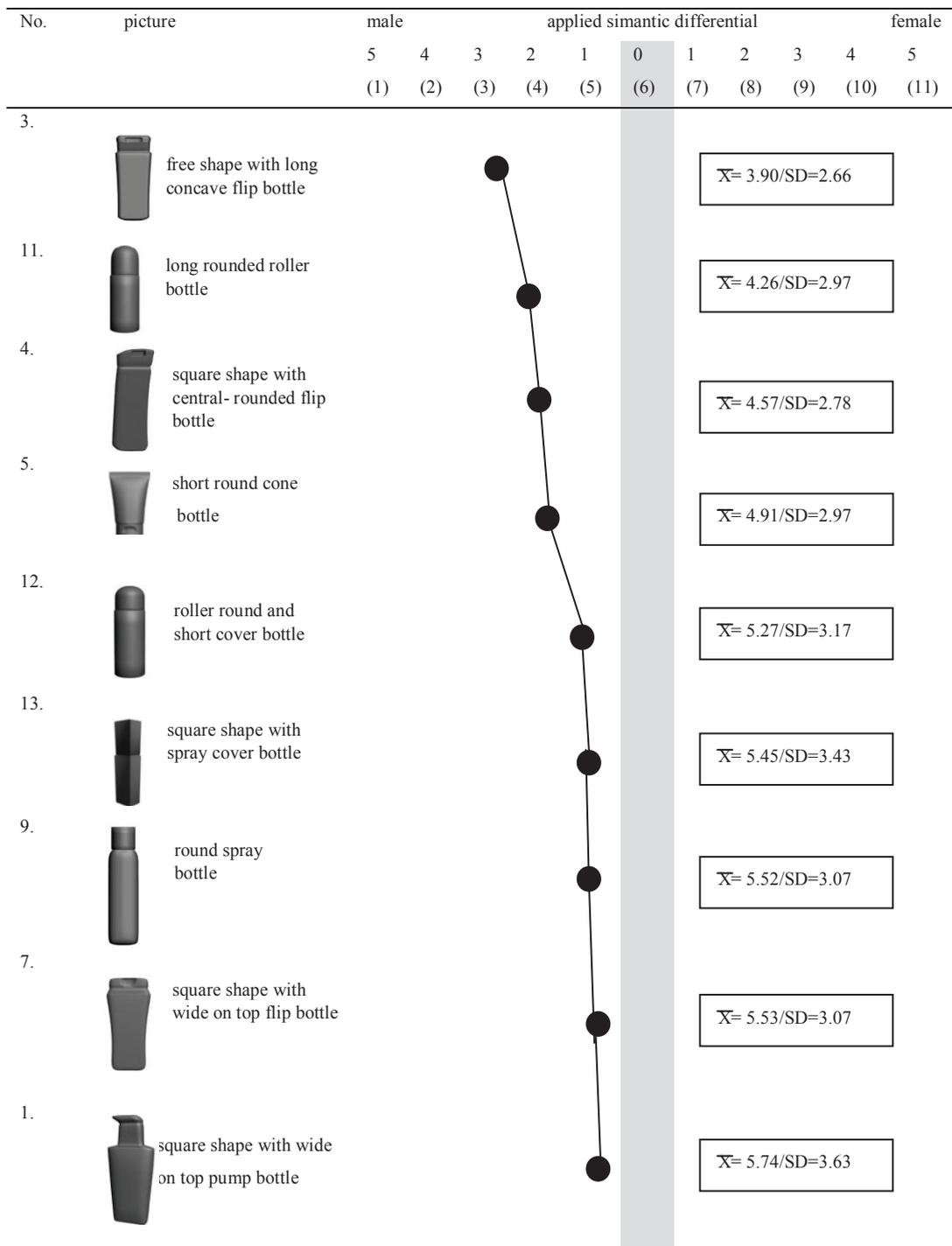
Table 8. Factor in visual perception of arts in the geometrical shape which are not represented of female and male

No.	picture	applied semantic diferencial										
		Male					0	female				
		5	4	3	2	1	0	1	2	3	4	5
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
6.	 pyramid shape							●				
								$\bar{X} = 6.53 / SD = 2.82$				

Table 9. Factors for perception of female packaging shape

No.	picture	applied semantic diferencial										
		male					0	female				
		5	4	3	2	1	0	1	2	3	4	5
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2.	 free shape curved and rounded pump bottle											●
								$\bar{X} = 8.30 / SD = 2.77$				
14.	 free shape spray bottle											●
								$\bar{X} = 7.66 / SD = 2.66$				
6.	 long round cone shape bottle											●
								$\bar{X} = 7.29 / SD = 2.88$				
10.	 round shape concave neck spray bottle											●
								$\bar{X} = 7.29 / SD = 2.92$				
8.	 free shape with long concave flip bottle											●
								$\bar{X} = 7.28 / SD = 2.86$				

Table 10. Factors for designing perception of masculine packaging shape



5. Conclusion

This research aims to found identity of packaging which are represented of female and male on a case study of cosmetic packaging design. This research aims to investigate the distinctive perceptual response between young male and female on graphical and packaging appearance leading to their buying decision. The research endeavors to reveal the distinctive graphical and formal design factors determining packaging preferences in accordance to the level of cognitive and affective sensory between genders. And finally, the research recommends a set of design guidelines for cosmetic packaging—color, shape, element and principle—responding to young purchasers’ gender differences. Research tools comprise a set of distinctive visual stimulus embedded with the contradictory factors mentioned earlier, and a set of corresponding questionnaires to draw perceptual reactions from respondents of both sexes. Sampled respondents are drawn from a group of graduate and undergraduate students, 19-23 years of age, within the KMITL department of industrial design and education to control differences between educational backgrounds and artistic experiences. The research finally suggests a set of differentiating packaging design guidelines in accordance with the research findings for paradigmatic purposes.

5.1. Suggestions for packaging design for male

The characteristic of packaging shape are different as follow; long concave flip bottle, long rounded roller bottle, square shape with central- rounded flip bottle, short round cone bottle, roller round and short cover bottle, square shape with spray cover bottle, round spray bottle, square shape with wide on top flip bottle, and square shape with wide on top pump bottle. The color for designing are Nplementary tone (black), cool tone (blue), contrast tone and harmony tone. The appropriate elements and principles are diagonal squares. Straight line, intersect line

5.2. Suggestions for packaging design for female

The characteristic of packaging shape are different as follow; are free shape curved and rounded pump bottle, free shape spray bottle, long round cone shape bottle, round shape concave neck spray bottle, and free shape with long concave flip bottle. The color for designing are warm color (pink) cool, Nplementary color (white). The elements and principles are symmetry, curve shape, asymmetry and curve line.

Acknowledgement

Arch.D. Program, in Multidisciplinary Design Research, Faculty of Architecture, King Mongkut’s Institute of Technology Ladkrabang, Chalongkrung Road, Ladkrabang, Bangkok, Thailand.

References

- Chatchai Auttapuk (2007). *Elements of art*. Bangkok Thailand. Wittayapat Publisher.
- Chairat Autsawarggul (2005). *Designed to liking*. Bangkok Thailand. Department of Export Promotion Bangkok Publisher.
- Kasikom Research Center (2008). *Men’s cosmetics market*. Retrived from <http://www.positioningmag.com/prnews/prnews.aspx?id=76091>. July 2010.
- Napawan Kananuluk (2004). *Power of packaging*. Bangkok Thailand :Love and lift Publisher.
- Manager weekly (2007). *Nivia body lotion*. Retrived from <http://www.gotomanager.com/news/details.aspx?id=55964>. Jun 2010.

- Manot Kongkanun (1995). *Art design*. Bangkok Thailand: Thaiwattanapanish Publisher.
- Monruedee Mitcharoenthavorn (2005). *Graphic design on packages for men's cosmetics*. A Thesis for the degree of Master of Fine and Applied Arts Program in Creative Arts Department of Creative Arts Faculty of Fine Applied Arts Chulalongkorn University Academic Year 2005. Bangkok Thailand.
- Mattanee Pongnetpanid (2002). *The use of graphic composition on packaging to communicate personality for reproductive health products for female teenagers*. A Thesis for the degree of Master of Fine and Applied Arts Program in Creative Arts Department of Creative Arts Faculty of Fine Applied Arts Chulalongkorn University. Bangkok Thailand.
- Wilert Pruriwatchara (2009). *Mass marketing is mass mistake*. Retrived from <http://www.oknation.net/blog/print.php?id=457674>. Jun 2010.
- Wiroon Tangcharoen (2002). *History of Art and Design*. Bangkok Thailand: Suntisisri Publisher.
- Suchart Thaothong (2002). *Human visual arts*. Bangkok Thailand: Auksornjalornthus Publisher.
- Somchai Promsuwan.(2005). *Principles of Visual Arts*. Bangkok Thailand: Chulalongkorn University Publisher.
- Siriporn Peter (2006). *Graphic design*. Bangkok Thailand: Odean Store Publisher.
- Sridara Tipian (2008). *An empirical research approach toward a design guideline for single occupancy hospital ward in a thai perceptual and behavioral context*. A Thesis for the degree of Master of Architecture in Interior Architecture school of Graduate studies King mongkut's institute of technology ladkrabang. Bangkok Thailand.