GENDER DIFFERENCES ON SHAPE PREFERENCES

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Abstract - Shapes are the basic design elements that have influences on human perceptions. Its specific characteristics that include motivation, perception as well as signal for masculinity and femininity are focused on this study. Gender differences are the subject in rating affective responses. The results can assist communicators and marketers in selecting the ideal shape dimensions to match their target genders.

Index Terms - Affect, Gender Differences, Response, Shape Preferences.

I. INTRODUCTION

Visual communication has played an important role in our everyday lives. Its fundamental is based on visual dimensions that concerned how people perceived. The more perceivable visual element is the more successful communication becomes. Pictures are perceived faster than words[1], [2]design is therefore considered the basic visual language that eases communication[3]. The processing of visual graphic is different from verbal information's process[3]. Its potentials help viewers learning faster, remember longer[2]as well as calling affect [4], therefore it has influence on viewerperceptions [3]. Consequently, the appeal of design becomes a critical issue for several kinds of communication, particularly in corporate marketing[5],[6]. In addition, aesthetics in product design, package design, and advertising design are increasingly significant todays[7], hence the topic has been studied and developed by many marketing researchers. Henderson and Cote[2] suggests that the visual stimuli i.e. symbols, pictures, and objects are widely generalizable across each other. Thus, art and design elements are the focus of this research. Shapes in particular, can be considered as the most basic aesthetic elements that affect human perceptions[7], [8]. Ithasbeen constantly studied since there are diversified aspects of shape such as symbol, logo, and so on.

Since the purpose of all kinds of communication are to communicate. Successful communications require potential senders who understand how receivers perceive. In marketing field, realizing how to make clients perceive clearly and correctly as intended are aim of a firm. Hence, learning viewer preferences are associated in all communications. There are severalsocio-demographic variables to study in viewers, this research chooses to focus on gender since there are common connections with shape dimensions.Affect is considered in response to shape characteristics.This research examines how different genders perceive shape differencesas well as explores onfour different shapes, to find which specific shapehas higher influence on male and femalepreferences.

II. SHAPE CHARACTERISTICS

Literatures have shown that design dimensions impact human responses as Zhang [9]suggests that shape differences effect human perceptions differently. Perception of product forms are similar to pieces of art work that can stimulate customers and viewers affection [10]. Thus, shapes as in symbol, logo, product, and etc. attract viewer and customers in positive and negative ways.

There are several researches that focused onthe effect of shapeson consumer perceptionsthat have been investigated by scholars i.e. logos that are associated with natural, harmony, elaborate, parallel, repetition, roundness[2], [3], are favorable, as well as the appropriate proportion of shapes [2],[3], [5], [11]. Additionally, several pairs of the opposite designs that affect human perceptionssuch as naturalness versus abstractness [6], and angularity versus roundness[9], [12], [13]regarding brand gender perceptions have also been examined.

Arousal theory, one of the motivation theories concerned human preferences [14]suggests that complexity and varietyas well as irregularity and disorder [10]tend to receive more arousal and motivation[14]comparing to the designs that follow Gestalt laws which produce low level of affect [10]. Furthermore, ornamental design perception create positive affect especially in East Asia[5].

On contrary, Gestalt psychology, another one of perception theories that is related to preferences[14],explains that people prefer objects that are harmony and being in order[10] such as simplicity [14]because it can lead to pleasantness. This is also found in empirical study by Veryzer[15]that the designed shapes by Gestalt principle are favorable.

The concepts of Arousal and Gestalt theories are totally contrast and that can be arguable (see Table I).Additionally, Henderson et al [14]suggested the essential variables for future study that include angularity versus roundness, naturalism versus abstractness and ornamentalism versus simplicity. The first two opposite pairs have been investigated by researchers but simplicity and complexity arestill remain unexplored. This research is therefore aimed to

examine the effect of these two opposite variables on genderdifferences preferences.
Research question 1: Does complex shapes have differenteffect on gender difference?
Research question2: Does simple shapes have differenteffect on gender difference?

Table I. Definition and Visual Samples of Stimuli Shapes

Study 1	Complexity versus Simplicity	
Complexity	Shapes that are dynamic and active, as well as composed or assemblage of many elements, parts or things.	
Simplicity	Shapes that are simple, clean, pure, plain and free from complexity and ornament.	

Table I. shows two contrast ideas ofshape acquiring from Arousal and Gestalt theories that include complexity and simplicity respectively. Their definitions are provided as well as visual samples of stimuli.

III. GENDER PREFERENCE IN SHAPES

There are number of theories that have been used and developed for aesthetic study over the last century. Cognitive theory is one of the three theories concerned preferences as suggests by Henderson et al [14] besides motivation and perception theories. Preference and behaviors are influenced by the evolution by selection [16], the idea is basically rooted from the Evolutionary Psychology (EP). Scholars employ EP based theories in studying various fields such as brand and marketing areas, as EP is applicable to explain how physical design impacts perceptions of masculinity and femininity [12]. Due to the fact that human response to specific traits that indicate relations to specific gender which may lead to preference [12],thus gender preferences on graphic shape designs can be described by utilizing EP.
Lieven et al [12] indicates that genders' senses are related to colors i.e. light color connects closely to femininity whereas darker color attracts to masculinity. Previous researches reveal that women prefer natural graphic forms whereas men like forms that are applied from nature such as cultural, mechanic, and technical forms [6]. Also, some researcher proposed that design concerns heavy form attracts masculinity comparing to femininity who are interested in slender design [12].Schmitt and Simonson[5] suggests that angularity related to male whereas roundness connects with female. Pittard' idea[11] also supports that angular shape associates with masculinity on the features of active and powerful whereas roundness links to femininity on balance and harmony.
This study is interested in finding another pair dimensions of shape. According to literature reviews, shape that are light, slender, curve, and natural can signal femininity whereas applied shapes that are dark, heavy, and angular can convey masculinity. Delicacy and solid then are selected as their attributes are acceptable for expressing femininity and masculinity respectively. Furthermore, both shapes have rarely been studied among researches. Therefore delicacy and solid are considered to be another pair of shape variables for this study (see Table II).
Research question3: Does delicate shapes have different effect on gender difference?
Research question4: Does solid shapes have different effect on gender difference?

Table II. Definition and Visual Samples of Stimuli Shapes

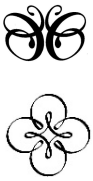
Study 2	Delicacy versus Solid	
Delicacy	Shapes that connect with tender, fragile, light, subtle, sensitive and graceful looks.	
Solid	Shapes that look bold, firm, thick, and being substance.	

Table II. displays two opposite shapes that include delicacy and solid with their definitions as well as visual samples of stimuli.

IV. SHAPE RESPONSES

Not only shape dimensions are important, but also responses to those various shapes. A number of scholars have explored response dimensions that several variables have been investigated. Most of popularity among all include affect[2],[3],[6],[14],[17], familiarity[3],[17], [18], meaning[3],[14], [17], and recognition[14], [17], [18],[19]. According to theory of Veryzer [15], affective responses to aesthetics occur in our processing algorithms which derives from biological, can be learned, experimented and developed [20]. Culture is also another source that generates human preferences[14], Berlyne [8] and Gestalt principle indicate that people judge the design by the notion of their cultures[11] which is also the same impacts as in product forms that are designed according to culture and social norms [21].

There are two important strands that definitely lead to affective response including meaning and familiarity. The concept of meaning is related to codability of object. The more codable the source is, the more meaningful the object becomes[2]. The coded object is primarily encoded by its culture [21] that is connected to conceptual fluency processing. The conceptual fluency communicates through meaning that come from experience which can be developed to liking [14]. Designer communicates the encoded meaning that acquired from the culture through the designs and expected that encoded designs to be decoded by clients [21]. Familiarity can be described in the area of perceptual fluency theory that facilitates perception which produces favorable responses [14]. It is based on familiar feeling of stimuli that comes from experiences [2]. Pittard [11] affirms that previous exposure of stimuli increases affect.Meaning and familiarity are highly connected accordingly [14], both generate positive affect eventually.

Affective responses are considered pleasant feeling that people have toward things, persons, events, and so on. They are associated with art and design[10], for instance, feeling appreciation towards logo can convey privilege to product or business [22]. The affect's salient benefits are not only ability of transferring to product or company, but also ability to guide selection and decision [3]. The concept of affect is initiatively based on cognitive theories that emphasizes on shaping attitude [14]. Thus, affect is the selected variable in responding to different shapes for this study.

V. RESEARCH DESIGN

There are four studies in this research in order to answer four research questions. The first two studies concern on the effect of two opposite shapes: complexity and simplicity on gender difference. The other two studiesreviewthe effect of two opposite shapes: delicacy and solid on gender difference.

A total of 324 undergraduates from King Mongkut's Institute of Technology Ladkrabang participated in this study. Among them, 52.5% were women, and most participants are age 21.

Unfamiliar black and white symbols were selected as stimuli to avoid the effect of past exposure. The stimuli originally are various symbols obtained from two foreign symbol books: Trademarks & Symbols Volume 2: Symbolical Designs[23] and Trademarks & Symbols of the world Volume 2: Design Elements[24]. Each participant randomly evaluated his/her affective responses on 2 sets of 4 stimuli that reflected complexity and simplicity in one set, and delicacy and solid in another set, total of 16 sets (64 stimuli), to measure affect, 5 point likert scale were used (1 = strongly disagree, 5 = strongly agree).

RESULTS AND DISCUSSION

T-Test was performed to evaluate affect that served as dependent variable whereas four different shape designs (complexity, simplicity, delicacy, and solid) are served as independent variables. The results are demonstrated in Table III.

These results of this study can answer to research questions 1, 2, and 3 that gender differences do not have effects on affective response toward complexity, simplicity, and delicacy respectively.However, in responseto research question 4, the results of Study 4 suggest that gender differences have an effect on affective response toward solid shapes.

Study 1 that is focused on the effect of complexity on different genders, the results support the idea that overly design i.e. complicated, elaborated, and irregular shapes produce excessively stimulate feeling[10]. Besides, the results of study 2 implies that simple, normal, and regular designs can lead to boredom[8].Both Arousal and Gestalt theories do not have effect on gender differences. Therefore satisfactory can be found in appropriate proportion of both designs [10].

Study 3 demonstrates that delicacy have no effect on different genders.Hence shapes that are delicate are not always simply attracted to femininity, that is male and female perceive them similarly.Study 4 reviews the effect of solid shapes, andfinds that male respondents are affected by solid shapes more than female. This supports the idea that male prefer shapes that are connected with bold, firm, thick, and being substance to female.

Thus in visual communication, designs that are complex, simple, and delicate are commonly utilized among different genders. In addition, the product that aims for selling to unisex customers can use these designs in designing process.In contrast, the designs or the products that are particularly objected to sell for male customers, solid designs shouldbe considered as they affect male more than female respondents. These results can be beneficial to managerial teams in design strategic planning for all kinds of communication firm as well as marketing brand.

Table III. Independent group T-Test between affect toward four different shapes and students' gender

			Male		Female	
	T	P	M	SD	M	SD
Affect toward Complexity	1.144	0.253	3.18	1.069	3.04	1.221
Affect toward Simplicity	1.326	0.186	2.78	1.056	2.61	1.203
Affect toward Delicacy	0.178	0.859	3.19	0.864	3.18	0.975

Affect toward Solid	6.13 5	<0.00 1	3.6 6	0.88 0	2.9 7	1.14 3

I. Limitations and Directions for Future Research

This research focuses mainly on perceptions of gender differences on four shape differences (complexity, simplicity, delicacy, and solid), questionnaires were distributed inone university. Future researchers could extend this framework to explore other socio-demography i.e. age, educational background, different races, and region of birth. Our stimuli are limited to two opposite sets of shape, more designs of shape and symbol are encouraged. Another question worth examining other type of institutions such as any specific business that can provide more specific detail information if require.Finally, it is recommend that future research focus on other type of responses i.e. recognition.

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