

# A Study on Product Preference Based on Self-Congruity of Gender Schema

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**Abstract:** As time evolves, gender roles and gender stereotype underwent dramatic changes, which highlight the limitation of traditional physical gender positioning in product design. Therefore, the study proposes the necessity to re-examine the gender positioning on both users and products. Besides, with the rise of self-consciousness, products have become a symbol of the way to interpret the self-image of the individuals. Several studies on self-congruity also showed that consumers tend to buy the products with higher self-congruity of them. Therefore, whether gender schema affects users possess certain products, reflecting design characteristics with self-congruity, it is the issue this study would investigate. The purpose of this research is to find out the design characteristics with high self-congruity of gender schema groups to better determine the product preference of each group. This research utilized Sex Role Scales to divide 110 subjects into 8 gender schema groups, and sampled 24 subjects by stratified random sampling method to participate in the interview to extract design characteristics with self-congruity from their possessions through Evaluation Grid Method. The results showed the differences of design characteristics with self-congruity among gender schema groups. By comparing with subjects' gender schema, the results set up design characteristics with self-congruity and the product preference of each group.

**Keywords:** *Gender Schema, Self-Congruity, Design Characteristics, Product Preference, Evaluation Grid Method*

## 1. Introduction

### 1.1 General Background Information

Gender differences of consumers have been taken as a classification of information processing, and therefore the gender of consumers is not only an important variable when it comes to the strategy of market segmentation, but also one of the key indicators to distinguish the target market for marketers [1, 2]. "If there is an obvious gender split, and the incremental business opportunity can be justified without jeopardizing the core brand, then brands will continue to seize the initiative." says Elizabeth Davies, communications manager at Nestlé, where they're responsible for marketing both Kit Kat Chunky (manly product) and Kit Kat Senses (ladylike product) [3].

In the view of design, product design is also the process involving gender differences. Product image (including color, shape, etc.) often corresponds to the masculine or feminine characteristics which are socially defined and thus strengthen gender differences. As other studies [4, 5] observed, products would be determined to

have a specific gender positioning depending on its target users, and product gender would also tend to affect consumers' decision-making..

As time goes by, gender roles and gender stereotype underwent dramatic changes [4]. Before the 1970s, scholars believe that gender role is a polarized view that masculine and feminine qualities are generally considered as a mutually exclusive single continuous dimension. It means if one has high masculine qualities, and then his feminine qualities must be relatively low [6]. However, dichotomy perspective on gender roles began disintegrating after going through the baptism of western cultures, and the new classifications of gender roles started to emerge relatively. In 1974, Bem first proposed that in addition to the masculine and feminine from the classification of gender roles, androgynous is another gender role [7]. Spence, Helmreich and Stapp further stated that androgynous includes high masculine-high feminine (high M-high F) and low masculine-low feminine (low M-low F) [8]. The view was accepted by Bem in 1977 and subdivided androgynous into two gender roles that "androgynous" with high M-high F and "undifferentiated" with low M-low F [9].

As the result, the tremendous changes of gender concept highlight the limitation of traditional physical gender positioning in product design. In other words, those so called "masculine products" or "feminine products" in the market today are no longer sufficient to meet the needs of the consumers since masculine and feminine in mentality is an important aspect we need to pay more attention to [10]. Therefore, the study proposes the necessity to re-examine the gender positioning on both users and products.

For the reasons above, the positioning of the gender roles in the study would be thought outside the box, re-defined as eight groups based on gender schema theory that sex (male and female) X gender schema (masculine, feminine, androgynous, and undifferentiated). Through the more complete consumers' gender positioning to subdivide target market, we can more accurately capture what's psychological needs of different consumers.

Besides, with the rise of self-consciousness, consumers today start to emphasize their self-expressions, self-colors, self-styles, and so on, so consumers' decision-making is no longer simply to meet the basic functional requirements, but more likely to become a symbol of the way to interpret the self-image of the individual [11]. Norman also advocated that the products should not only have practical functions, but also have something to meet the demands of the consumers' hearts [12].

A photographer from the Georgia, United States, Jason Travis once recruited many people from different industries to have a photographic project called "Persona". He recorded the items carried in bags to observe the different relationships between the items and possessors, and the results showed that the carried things reveal the career and even the life class of possessor.

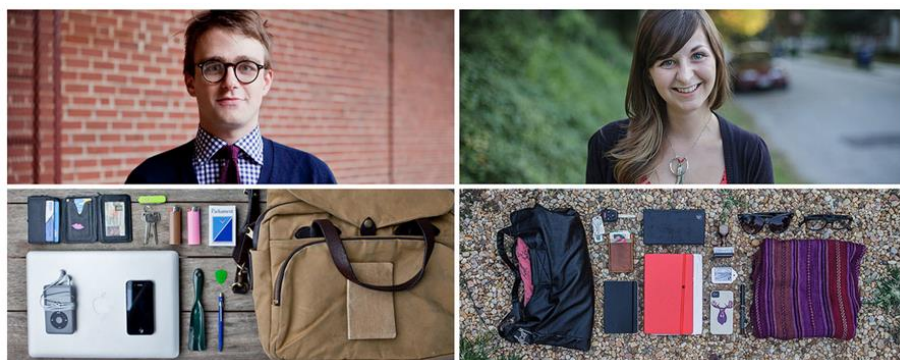


Figure 1. Photographic project "Persona" by Jason Travis

The result also shares the common gist with the words from Kleine, Klein III and Allen that possessions to which there is attachment, help narrate a person's life story [13]. Thus, it goes without saying that there's a firm relationship between self-image and possessions.

As Sirgy noted in his research of self-congruity, consumers would compare product characteristics with self-image while consuming, and consider whether the product-user image is consistent with self-image or not [14]. The following studies of self-congruity more specifically show that consumers tend to buy the products with higher self-congruity [15, 16] and give them higher evaluations [17]. In other words, to improve the product purchase behavior and product evaluation, understanding the congruity of product-image and self-image would be a crucial part for our considerations.

Therefore, whether gender schema affects users possess certain products, reflecting design characteristics with self-congruity, it is the issue this study would investigate.

## 1.2 Purpose of Research

The purpose of this research is to find out the design characteristics with high self-congruity of each gender schema group. More specifically, through the possessions of each gender schema group, finding out what design characteristics are highly conveying their self-image respectively to further discuss the product preference of each group, thus providing a better improvement of product purchase rate and evaluation factors as a reference.

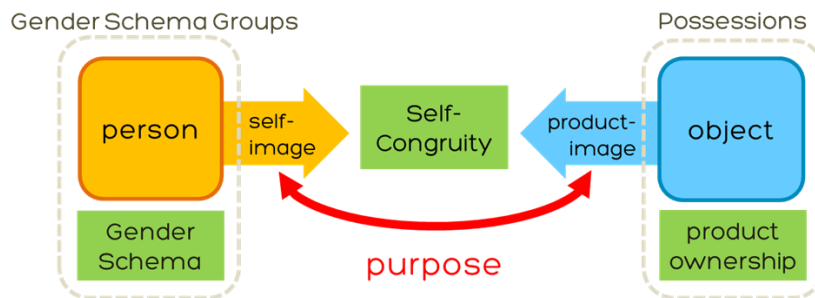


Figure 2. The diagram of purpose of research

## 2. Research Method and Procedure

There are three stages of experiment in the study. The 1st stage is gender schema grouping to determine the gender roles of subjects. The 2nd stage is qualitative interview to extract design characteristics with self-congruity from their possessions through Evaluation Grid Method. The 3rd stage is characteristics screening to selects top 25% of design characteristics which are highly congruent with self-image by the assessment of self-congruity.

### 2.1 The First Stage: Gender Schema Grouping

In this stage, "Sex Role Scale" by Li, Mei-Chih [6], which is modified from Bem Sex Role Inventory (BSRI), was adopted to determine the gender roles and establish their respective gender schema. There are 40 items, including 20 masculine adjectives and 20 feminine adjectives, in Sex Role Scale. (see Table1)

Table 1. Forty items in Sex Role Scale

Masculine adjectives	膽大的(bold), 嚴肅的(serious), 深沉的(profound), 競爭的(competitive), 善謀的(good at planning), 冒險的(willing to take risks), 有主見的(opinion-maker), 主動的(active), 剛強的(doughty), 獨立的 (independent), 行動像領袖的(acts as a leader), 有領導才能的 (leadership ability), 幹練的 (competent), 穩健的(steady), 豪放的 (heroic spirit), 靠自己的(self-reliant), 自力更生的(self-sufficient), 好支配的(dominant), 個人主義的 (individualistic), 有雄心的(ambitious)。
Feminine adjectives	文雅的(elegant), 溫暖的(warm), 矜持的(modesty), 愛美的(beauty), 討人喜歡的 (loveable), 善感的(sentimental), 動人的(touching), 伶俐的(clever), 天真的(naïve), 心細的(observant), 純情的(innocent), 溫柔的(gentle), 端莊的(dignified), 整潔的(clean), 親切的(friendly), 輕聲細語的(soft-spoken), 純潔的(pure), 富同情心的(compassionate), 愛小孩的(loves children), 慈善的(charity)。

Using five-scale Likert Scale to evaluate self-image with 40 items in the questionnaire. (【1】 stands for Strongly Incongruent; 【2】 stands for Incongruent; 【3】 stands for neither Congruent nor Incongruent; 【4】 stands for Congruent; 【5】 stands for Strongly Congruent.) Basically, scoring according five scale descriptors of Likert Scale that 【1】 stands for 1 point, 【2】 stands for 2 points, and so forth.

Subjects are 110 young adults, whose age span is defined as 18 – 30 years, including 50 males and 50 females, the group having more vivid self-gender attitude and self-image in gender schema development.

According to the rule of *split median technique*, subjects were classified into four groups of gender roles depending on scores in M adjectives and F adjectives (higher or lower than the median) and hence establish their gender schemas respectively: (1) androgynous, (2) masculine, (3) feminine, and (4) undifferentiated. See Figure 3.

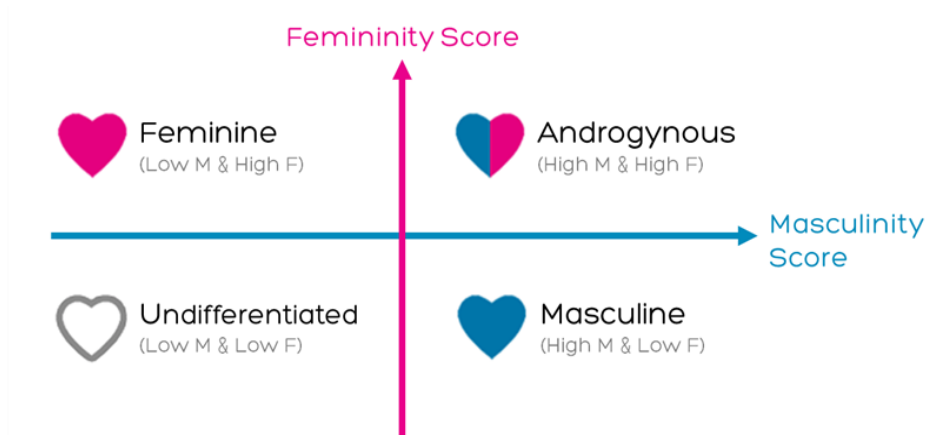


Figure 3. Criterion of gender schema grouping

And then calculating the scores of male and female respectively, we could have 8 groups of gender roles by sex (male and female) X gender schema (masculine, feminine, androgynous, and undifferentiated). See Figure 4.

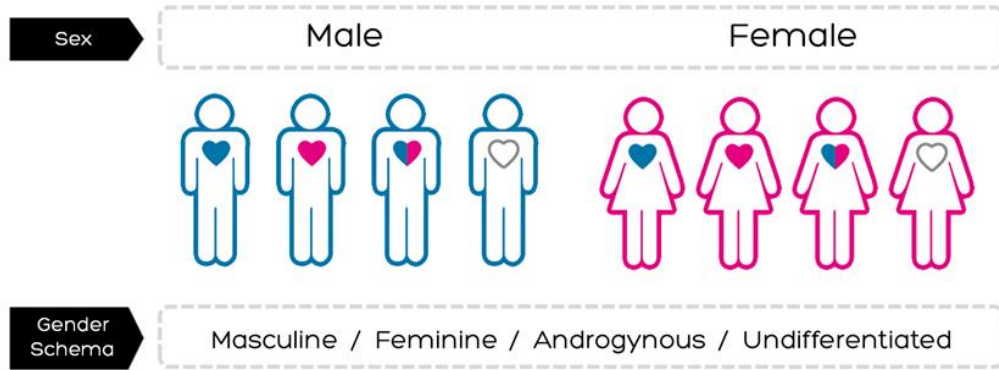


Figure 4. Eight groups of gender roles

Table 2. Cross-tabulation of Gender Schema Grouping

	Male	Female	Total
Androgynous (count within Sex)	17 (30.9%)	19 (34.5%)	36 (32.7%)
Masculine (count within Sex)	12 (21.8%)	10 (18.2%)	22 (20.0%)
Feminine (count within Sex)	12 (21.8%)	10 (18.2%)	22 (20.0%)
Undifferentiated (count within Sex)	14 (25.5%)	16 (29.1%)	30 (27.3%)
Total (count within Sex)	55 (100%)	55 (100%)	110 (100%)

## 2.2 Preparation before The Second Stage

### 2.2.1 Subjects Screening - Stratified Random Sampling

Stratified Random Sampling Method was applied to sample 24 subjects, approximately 3 subjects from each gender schema group, to participate in the next stage of interview.

### 2.2.2 Experiment Specimen Screening - Possession Selecting

According to Belch and Landon [18], it is necessary to account for the effect of product ownership while evaluating since product ownership would increase the possibility of a product being rated as congruent with self-image. Therefore, the specimens are limited to the subjects' possessions, which must be bought by themselves to ensure the possessions are rated as congruent with self-image.

Based on the rules of screening above, the subjects are asked to prepare 5-8 possessions they bought with high self-congruity for the next stage of experiment.

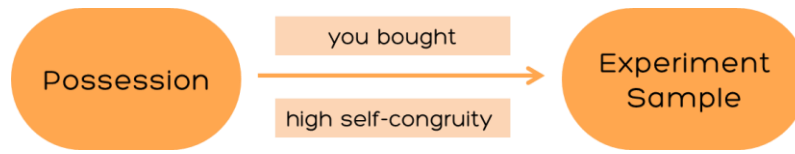


Figure 5. Rule of specimen selecting

### 2.3 The Second Stage: Qualitative Interview

The purpose of this stage is to find out the design characteristics with high self-congruity of each gender schema group. In order to authentically present how self-image projected on product-image, the way of qualitative interview that interviewee and interviewer exchange opinions is helpful [19]. In this stage, 24 subjects were chosen by Stratified Random Sampling Method to participate in the qualitative interview to extract design characteristics with self-congruity from their possessions through Evaluation Grid Method (EGM).

EGM reveals the factors of evaluation and preference structures through interview process. The general steps are as follows:

1. First, subjects are asked to rank their possessions they brought from most to least congruent with self-image. (Ex: possession A > possession B > possession C > .....)
2. Next, subjects are asked to state the reasons of ranking. The question in the interview would be like “Why did you rank possession A is more congruent with self-image than possession B?”, and the rest may be conducted in the same way.
3. Identifying the “Original Evaluation Items” (OEI), and asking abstract concepts and concrete conditions about OEI to derive the “Relative Evaluation Items” (REI).
4. Laddering the OEI and REI and establishing the structure of EGM. The upper layers are abstract concepts, the middle layers are original evaluation items, and the lower ones are concrete conditions.



Figure 6. Possessions of each gender schema group



The interview was conducted individually and the data were collected primarily by means of a paper-and pencil record for later EGM establishing.

Generally, the content of EGM can be mainly divided into three aspects, including color, material, and styling. From the hierarchical diagram of EGM, the study collected the concrete conditions at the lower layers to get the specific design characteristics with self-congruity of each group. The example in Figure 7 is the hierarchical EGM diagram of masculine male.

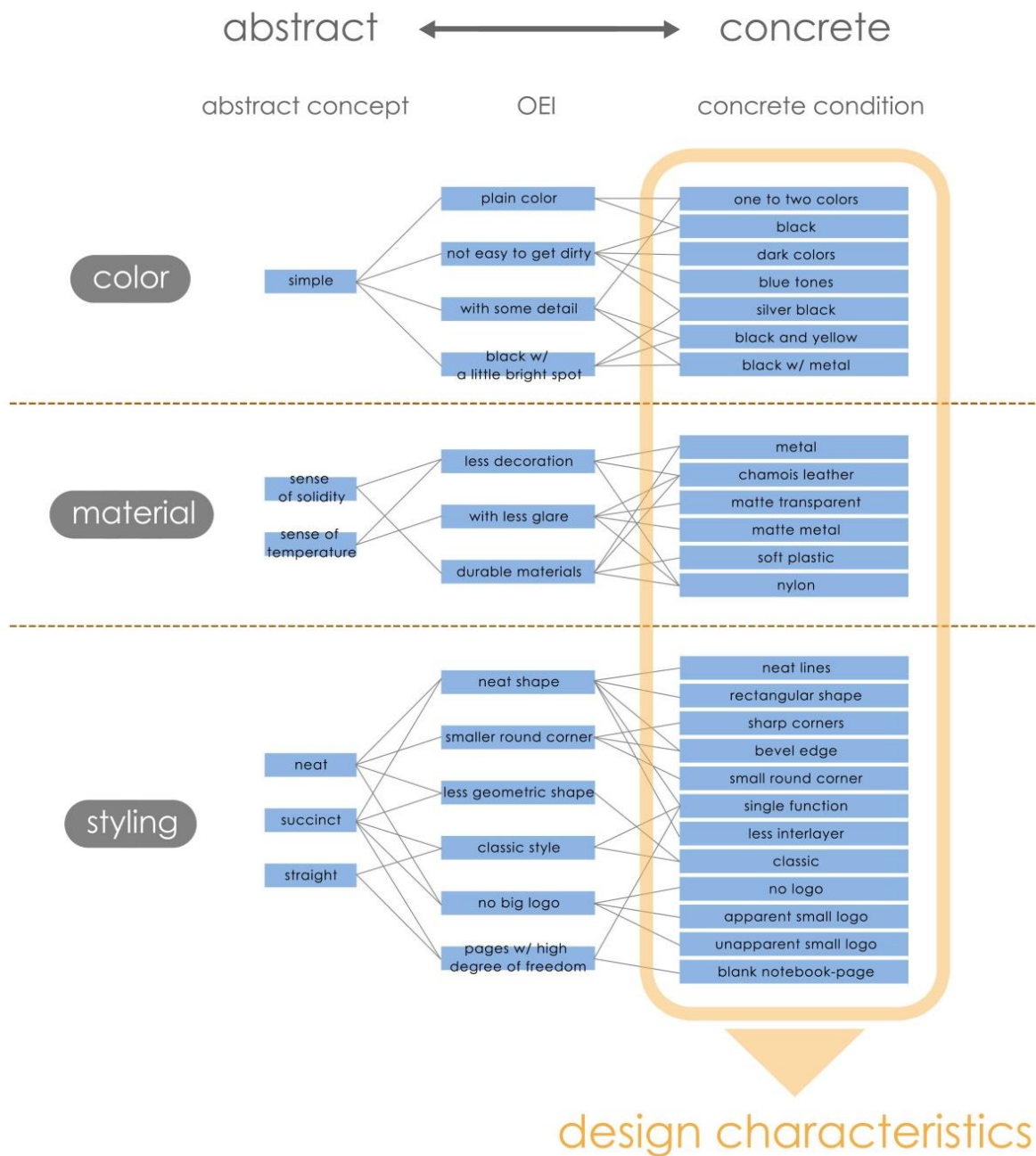


Figure 7. Example of design characteristics collecting

## 2.4 The Third Stage: Characteristics Screening - Assessment of Self-Congruity

The purpose of this stage is to screen the design characteristics obtained from the interview.

After collecting the design characteristics with self-congruity of each group, selected subjects of each gender schema group are asked to assess those characteristics and rate each item on a 1-to-5 score scale. For the characteristics, the more score rated, the higher congruent with self-image and preference. According to the total scores they rated, the study ranked the design characteristics from high to low in sequence and screened the design characteristics of each group with general agreement.

Selecting top 25% of data ( $Q_1$  or  $P_{25}$ ) based on the rule of Quartiles and Percentiles as the final design characteristics which are highly congruent with self-image.

Table 3. Chosen number of characteristics by  $P_{25}$

	Male	Female
Androgynous	$39 \times 25\% = 9.75$ (10) → <b>10</b>	$50 \times 25\% = 12.5$ (13) → <b>13</b>
Masculine	$26 \times 25\% = 6.5$ (7) → <b>10</b>	$45 \times 25\% = 11.25$ (11) → <b>11</b>
Feminine	$43 \times 25\% = 10.75$ (11) → <b>11</b>	$41 \times 25\% = 10.25$ (10) → <b>10</b>
Undifferentiated	$29 \times 25\% = 7.25$ (7) → <b>7</b>	$43 \times 25\% = 10.75$ (11) → <b>11</b>

As shown above, the number of characteristics chosen from each group depends on the value of  $P_{25}$ . For masculine male one, seventh to tenth characteristics are rated as the same score, which can explain the reason why the value of  $P_{25}$  is 7, but the chosen number is 10 (choosing top 10 design characteristics).

## 3. Results and Discussion

After having assessment of Self-Congruity, the selected design characteristics that each gender schema group preferred are described as the following. The study also demonstrates the corresponding symbolic pictures chosen by each group as examples.

- (1) **Androgynous male:** gray, no decoration, black, white, with pen hanger, thin, apparent thickness change, flow line, bevel edge, and unapparent small logo.



Figure 8. Design characteristics with preferences of androgynous male



- (2) **Masculine male:** blank notebook-page , black, matte, unapparent small logo, matte metal, small fillet, dark colors, blue tones, single function, and no logo.

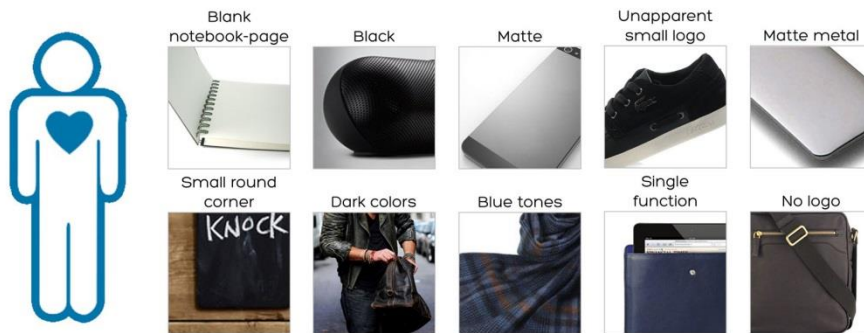


Figure 9. Design characteristics with preferences of masculine male

- (3) **Feminine male:** high value colors, high chroma colors, colorful, metal hairline, matte, blank notebook-page, thread-bound, grass green tones, small round corner, small area of cute pattern, and curved plane.



Figure 10. Design characteristics with preferences of feminine male

- (4) **Undifferentiated male:** blank notebook-page, white, aluminum / titanium, matte leather, chamois leather, small round corner, and matte.

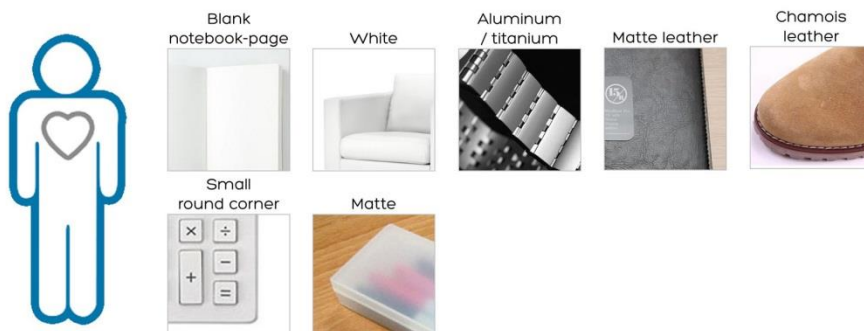


Figure 11. Design characteristics with preferences of undifferentiated male

- (5) **Androgynous female:** grass green tones, earth tones, thick kraft, wood material, embosse without color, grid notebook-page, white, orange tones, sackcloth material, thickness of the transparency, rough and warm paper, square shape, and thick edge.



Figure 12. Design characteristics with preferences of androgynous female

- (6) **Masculine female:** rough paper, black, wood material, embosse without color, grid notebook-page, non-pure colors, neat lines, earth tones, unapparent small logo, black outside and colorful inside, and white.

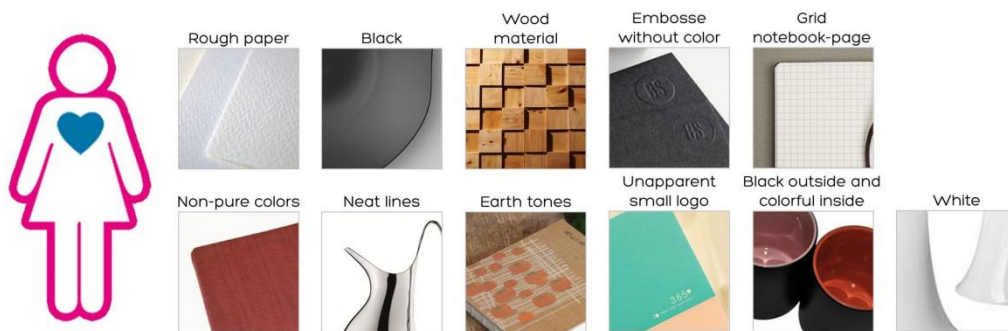


Figure 13. Design characteristics with preferences of masculine female

- (7) **Feminine female:** wood material, white, gray, matte transparent, brown tones, matte, bronze metal, transparency of glass, Japanese abstract pattern, and unapparent small logo.

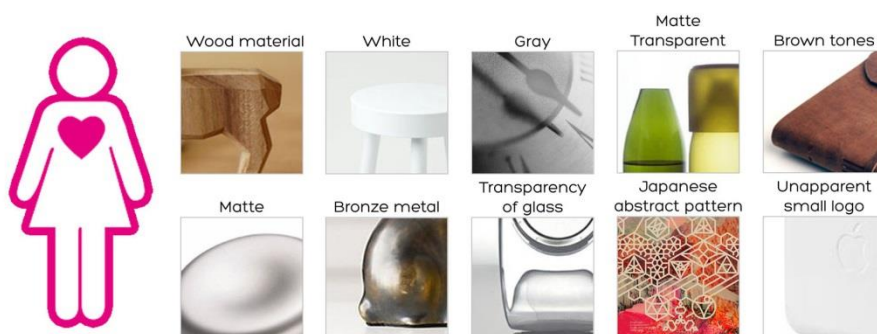


Figure 14. Design characteristics with preferences of feminine female

- (8) **Undifferentiated female:** integral model, no logo, thread-bound, abstract pattern, earth tones, multicolor but low chroma, small area of floral print, geometry, no decoration, small round corner, and blank notebook-page.

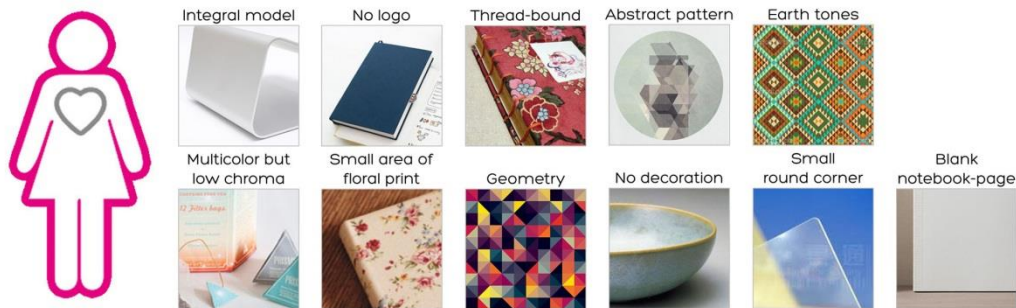


Figure 15. Design characteristics with preferences of undifferentiated female

The results showed the difference of design characteristics with self-congruity among gender schema groups from their possessions, and also reveal that gender schema would affect users possess certain products, reflecting design characteristics with self-congruity. By comparing with subjects' gender schema, the findings set up design characteristics with self-congruity and the product preferences of each group.

#### 4. Conclusions

After a series of experiment to find out the design characteristics with high self-congruity among different gender schema groups, we can identify the factors to attract certain consumers with different gender schema and further discuss the product preference of each gender schema group.

The study discussed the issue from two aspects, sex (physiological) and gender schema (psychological), to construct a more complete database of gendered product design characteristics with trends. Through introducing gender schema theory, we can improve the limitation of traditional physical gender positioning in product design, providing designers a better reference standard of gendered product design.

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