

The Female Consumers' Feel of and Preference for Handmade Paper's Texture

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Abstract. Female consumers, who can decide over 80 percent of consumption, are considered a group with the most potential purchasing power in the consumer market. Consequently, understanding female consumers' feel of and preference for handmade paper's texture can help designers with their development and design work. This study has two purposes: (1) examine female consumers' feel of and preference for handmade paper's texture; (2) explore the relations between their feel of and preference for handmade paper's texture. In this study, content analysis, focus groups and questionnaire are performed. 11 representative handmade paper samples were selected by content analysis and focus groups, 5 descriptive phrases for the feel of handmade paper's texture were come up with, and 32 subjects were surveyed using Likert Scale by questionnaire to assess their feel of and preference for the texture of handmade paper. The results showed that texture can affect the above 5 descriptive phrases "naturally harmonious", "cold-tone modern", "delicately elegant", "briskly interesting" and "retro-chic nostalgic". In addition, correlation and regression analyses were conducted to gain an understanding of how the above 5 different imageries can influence subjects' preference. Below is the regression equation: $Y=0.345X1+0.087X2+0.344X3+0.159X4+0.147X5-0.078$. In the equation, Y indicates the dependent variable of "preference level", and X1 stands for the independent variable of "naturally harmonious", X2 "cold-tone modern", X3 "delicately elegant", X4 "briskly interesting" and X5 "retro-chic nostalgic".

Keywords: Female Consumers, Handmade paper, Preference

1. Introduction

To boost the competitiveness of local townships and prevent traditional industries from declining, the Taiwan government has proposed its "cultural industry" policy to add more value to the traditional industries in Taiwan. To meet the social environment and policy requirements, the Puli-based Guang Hsin Paper Workshop has also been actively engaged in the development of cultural and creative products, one of which is the manufacture of handmade paper with different textures using various plants as raw materials. One of the most important elements in a cultural product is the touching of consumers' heart. Nowadays, more and more consumers pay attention to the aspects such as where a product's raw materials are sourced, how a product is produced, who produce the product, what the culture and stories are behind a product and so on. All of these have now become factors considered by consumers when they are making purchase decisions (Wu, 2006). Due to the inherent difference in brain structures, women tend to be more sensitive to their psychological needs such as their perceptions and emotions as well as other abstract matters (Cunningham and Roberts, 2007). Additionally, compared with men, women have stronger feelings about stories, cultures and their own perceptions, and are more sensitive to small changes and differences (Martha Barletta, 2008). Moreover, women's purchasing power is many folds stronger than that of men. Accordingly, in this study, a survey was conducted among female consumers to better understand if different textures of handmade paper would affect their feel of handmade paper. Below are the purposes of this study:

- Examine female consumers' feel of handmade paper's texture.
- Explore the relations between their feel of and preference for handmade paper's texture.

2. Literature Review

2.1. Handmade Paper

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Handmade paper refers to paper made manually using a mesh frame. In a broader definition, any paper that is manually made by a paper making worker can be called handmade paper (Chiang, 2010).

2.2. Method of Making Handmade Paper

The so-called handmade paper is paper made using a traditional method, which means the manufacturing process doesn't involve any sophisticated machines but only simple traditional tools. Most handmade paper uses plant fibers as raw materials. Sometimes only a kind of fiber is used. Sometimes, many different kinds of fibers are used. Different plant fibers can be made into paper of different characteristics. Besides, paper made from plants of the same variety but grown in different regions can also produce different textures. Fiber crop, tree bark, bamboo and rice straw are the main raw materials for paper making (Chiang, 2010). Generally, the manufacture of handmade paper involves the following steps (Guang Hsin Paper Workshop, 2012):

- The collection and treatment of raw materials: In this step, raw plant materials are collected and processed, e.g. cut into pieces and dried.
- The separation of fibers: In this step, the fibers of raw materials are separated by soaking in water, or by steaming or boiling.
- Rinse: After steaming or boiling, the raw materials are rinsed using a great amount of water.
- Whip into pulp: The fibers are whipped into thread-like form, i.e. pulp.
- Pulp dredging-up: Pulp is mixed with water and converted into thick fluid before using a mesh frame to dredge up the fibers and let a thin layer of wet paper form on the mesh.
- Pressing: Place the wet paper on top of each other and press it to get rid of water content, after which those paper form into a shape like tofu.
- Drying: Dry the paper in the sun or by heat or by air drying
- Completed: After the drying process, the tofu-like paper will become precious handmade paper.
- The samples used in this study were produced by adding different plants in the process of pulp-whipping or dredging-up. The difference is that if plants are added in the whipping process, it will form a crumb or thread-like texture, but if plants are added in the dredging-up process, it will form a texture in which complete leaves or petals can be exhibited.

2.3. Females' Consumer Behavior and Psychology

The part connecting the two cerebral hemispheres in a human brain is called corpus callosum. It contains over 200 million nerve tracts that are in charge of the right brain's message passing. Related studies show that women's corpus callosum is much thicker than that of men, suggesting that compared with males, females have a higher nerve transmission ability, and that they are better at problem solving by connecting their two cerebral hemispheres, namely they are more whole brain-oriented (Cunningham and Roberts, 2007).

Women's whole brain orientation happens to be able to explain the "femininity" they demonstrate in daily life. Women's brain can process various kinds of information such as emotion, non-language communication and aesthetic perception, and connect all of them together to build a panorama (Cunningham and Roberts, 2007). Additionally, women's senses are also keener than those of men such as senses of hearing, taste, smell and touch, especially sense of touch. As a result, women tend to enjoy an environment that can provide rich tactile experiences, e.g. a piece of furniture with softer quality or a thicker blanket (Barletta, 2008). Both the brain structure and sensory perception have suggested that compared with men, women, when engaging in consumer behavior, would pay more attention to their feelings and can easily be affected by their emotions. Factors, from store decorations to sales clerks, from products themselves to their after-sales services, can all be used by women as standards to judge a product's "perceived value". As long as the perceived value of a product is recognized, female consumers would be willing to invest more money for the product.

3. Method

3.1. Research Scope and Limitation

- The purpose of this study is to explore the relations between female consumers' feel of and preference for handmade paper's texture. Hence, color factor is not included in this study.

- Women aged between 18 and 35 were surveyed in this study.
- 84 sheets of handmade paper produced by Gaung Hsin Paper Workshop in different seasons between June and December 2011 were collected as samples in this study.

3.2. Research Hypothesis

- This study hypothesizes that handmade paper made from different plants can exhibit different textures, which can therefore give subjects different perceptions.
- This study also assumes that there exist relations between female consumers' feel of and preference for handmade paper's texture.

3.3. Pre-experiment

3.3.1. Selection of Words and Phrases to Describe the Texture of Handmade Paper

- **Step1:** Coming up with descriptive words and phrases: Seven experts and designers from related fields were invited for a brainstorm to come up with words and phrases that can best describe the texture of handmade paper. Totally, 73 descriptive terms were put forth.
- **Step2:** Classification of the descriptive words and phrases: Two experts with Chinese literary background were tasked with the work of classifying the above 73 descriptive terms into 5 groups through discussion and using KJ Method.
- **Step3:** Selection of descriptive words and phrases that are most representative: KJ Method was used to screen out from each group the words and phrases that can best describe the texture of handmade paper. The results are Naturally harmonious, Cold-tone modern, Delicately elegant, Delicately elegant, Retro-chic nostalgic.

3.3.2. The Selection of Handmade Paper Samples

3.3.2.1. Selection of Samples

In total, 84 sheets of handmade paper produced by Guang Hsin Paper Workshop in different seasons between June and December 2011 were collected as samples.

3.3.2.2. Classification of Samples

Five professionals from related fields were invited to classify, based on visual principle and through focus-group discussion, the above 84 sheets of handmade paper into the following 11 categories:

- **Sludgy:** Plants are minced to the extent that the original appearances of the plants cannot be recognized. Paper of this type has an uneven surface on which some protruding particles are scattered. This kind of handmade paper has a texture similar to dried soil, and is accordingly termed sludgy type.
- **Smooth:** The original appearances of plants can hardly be recognized on the surface of this kind of handmade paper, which is very smooth. Hence, this kind of handmade paper is named smooth type.
- **Loosely scattered dots:** The plants are scattered in form of dots on the surface of this kind of handmade paper. Thus, this kind of handmade paper is called Loosely-scattered-dots type.
- **Densely scattered dots:** Plants are densely scattered in form of dots on the surface of this kind of handmade paper. Consequently, it is termed densely-scattered-dots type.
- **Densely scattered long threads:** Plants are densely scattered in shape of long threads all over the surface of this kind of handmade paper. As such, it is called densely-scattered-long-threads type.
- **Loosely scattered long threads:** Plants are loosely scattered in shape of long threads on the surface of this kind of handmade paper. As a result, it is called loosely-scattered-long-threads type.
- **Densely scattered short threads:** Plants are densely scattered in shape of short threads all over the surface of this kind of handmade paper. Hence, it is termed densely-scattered-short-threads type.
- **Loosely scattered short threads:** Plants are loosely and evenly scattered on the surface of this kind of handmade paper. As such, it is called loosely-scattered-short-threads type.
- **Loosely scattered laminates:** Plants are scattered in form of laminates on the surface of this kind of handmade paper. Accordingly, it is named loosely-scattered-laminates type.

- **Densely scattered laminates:** Plants are densely scattered in form of laminates all over the surface of this kind of handmade paper. Thus, it is called densely-scattered-laminates type.
- **Organic appearance:** The original appearances of the plants are preserved on the surface of this kind of handmade paper. Consequently, it is termed organic appearance type. This type of handmade paper can further be divided into two subcategories: artificially arranged and naturally scattered.

3.3.3. Selection of Representative Samples

After all the handmade paper was classified into the above categories, to each of which a name was also given, 11 most representative samples were selected from each type through discussion.

3.4. Formal Experiment

3.4.1. Subjects

32 females aged between 18 and 35 were randomly selected as subjects in this study.

3.4.2. Experiment Procedures

the subjects were asked to view and feel with their hands the handmade paper samples before they were surveyed using 5-point Likert Scale on the intensity of their feelings about and preferences for the 5 descriptive phrases.

3.4.3. Data Analysis

statistic software SPSS v12.0 was used for descriptive statistic analysis, variance analysis, correlation analysis and regression analysis.

4. Conclusion

4.1. Female Consumers' Feel of and Preference for Handmade Paper's Texture

In this study, variance analysis was conducted to understand if there is any obvious difference between subjects' feel of handmade paper's texture and each descriptive phrase. The results show that with the change of texture, apparent differences can be found in the five attributes of "naturally harmonious", "cold-tone modern", "delicately elegant", "briskly interesting" and "retro-chic nostalgic" ($\alpha = 0.05$).

The analysis results suggest that textures of different handmade paper can affect subjects' feel. A further observation of the average intensity of the subjects' feel found that sample 1 (loosely scattered long threads) has the highest average in terms of "naturally harmonious" and "retro-chic nostalgic", indicating that the texture of this type of handmade paper can best give people the feel of being "naturally harmonious" and "retro-chic nostalgic"; sample 11 (organic appearance) can best give a feel of "cold-tone modern" and "delicately elegant"; sample 7 (loosely scattered dots) can give the strongest feel of "briskly interesting"; sample 4 (densely scattered laminates) has the lowest average in respect to "naturally harmonious"; sample 8 (densely scattered dots) scored the lowest in terms of "cold-tone modern" and "delicately elegant"; sample 5 (smooth) gives the slightest feel of "briskly interesting"; sample 11 (organic appearance) gives the least feel of "retro-chic nostalgic".

4.2. The relations Between Female Consumers' Preference for and Feel of Handmade Paper's Texture

The above-mentioned five descriptive phrases were used to analyze the relations between subjects' level of preference for and their feel of handmade paper's texture to see if their feel would affect their level of preference. The results showed that these five phrases have all reached a significant level and moderated a moderate positive correlation.

A multiple regression analysis was conducted with "preference level" as a dependent variable and the five descriptive phrases as independent variables to predict the relations between the subjects' preference and their feel. The results showed an R^2 of 0.551, which can explain a variation of 55.1%. A F-test showed a significant level of 0.000 ($< \alpha = 0.05$), indicating that there exists an obvious regression relation between the subjects' preference and feel. Lastly, a regression equation was built with regression coefficient, t value

and significance to predict, based on subjects' feel, their preference level for handmade paper's texture. The regression equation can be expressed as below:

In the equation, Y indicates the dependent variable of "preference level" (1 point means "dislike it very much" and 5 points "like it very much"; X1 denotes the independent variable of "naturally harmonious", X2 "cold-tone modern", X3 "delicately elegant", X4 "briskly interesting" and X5 "retro-chic nostalgic".

5. Discussions and Suggestions

The results of this study show that texture has an obvious influence on imagery. An observation of the mean value of imagery intensity found that the imagery of "dots" samples (loosely scattered dots and densely scattered dots) can revitalize subjects' feel; "threads" samples (loosely scattered long threads, loosely scattered short threads, densely scattered long threads) can produce very big difference in subjects' feel of texture imagery; "loosely scattered laminates" samples can give the feelings of "naturally harmonious", "retro-chic nostalgic" and "delicately elegant", while "densely scattered laminates" samples cannot, the reason for which could be explored through their components. The position and appearance of dots and their concentration and dispersal can produce different visual effects. "Dots" samples, featuring dots of different sizes densely or loosely scattered on the paper surface, can give a rhythmic feeling and produce an imagery of "briskly interesting". "Threads" samples, featuring long, short, thick or thin threads scattering at different locations and in different directions, can produce different feels. In addition to the above-mentioned differences, "threads" samples also contain more plant fibers than both "dots" and "laminates" samples. Consequently, they can produce bigger differences in imagery. Laminates of different shapes, concentration or dispersal, overlapping and splitting can produce different results and contribute to a contrast effect in the imagery of "laminates" samples.

The purpose of this study is to examine the influence of texture imagery on people's preference level, without exploring color factor. Nevertheless, it was found in the process of this study that when subjects were answering questionnaires, they would more or less affected by colors. As such, it is suggested that "color" should be included as a factor in the future researches to explore consumers' feel of and preference for handmade paper's color to further understand if color can make a difference in people's feel and if there exists a correlation between color and texture.

6. Acknowledgement

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