A study on Hat User Habits and Their Perception of the Product Form

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Abstract: A hat offers head protection as one of its main purposes; some hats have brims that block out sunlight. Through survey questionnaire, literature review, user behavior analysis and word recognition, this study investigates sixteen different types of consumer hat product to understand the relationship between hat form image and consumption habit perceived by consumers. This study was collected from 54 participants (32 male, 22 female), 16 primary variables (types of hat), and 20 affective-cognitive variable. The study results show that 64.8% of respondents see no need to wear hat; consumers have low requirement regarding the scheduled cleaning of hat that 83.3% of respondents either never cleans or only washes when hat gets dirty. In terms of hat type, baseball cap (50%), and flat cap (13%) have higher preference while wide brim hat, conical Asian hat, shawl hat, peaked cap, and bell shaped hat are least favored. Factor analysis is conducted on a series of adjectives describing types of hat and the results show five factors with higher significance. They are gentle/graceful, retro/understated, normal/ordinary, self-expression, and fashionable/trendy. The study extends further into the age demographics analysis that can be referred to in the design and development of different types of fashion and accessory product.

Key words: Hat, Form Image, Word Recognition, Consumption Habit

1. Introduction

In ancient Egyptian and Chinese culture, headgear not only serves a decorating purpose, but also represents social status and privilege. On one hand, a hat has practical functionality that it offers protection against heat and cold which is how it as a product was invented to begin with, anyhow. Some hats have brims that block out sunlight. A hat also offers decorating or fashion purpose; it can also protect one's hairstyle or, even in some cases shield one from having lower self-esteem, in a cognitive psychology sense, that come with baldness. Continuous evolvement in culture and technology also brings a variety of designs and changes that offer people nowadays the choices and goals different from the past. 95% of the human behavior is habitual and so is the shopping behavior [1]. In the west, consumers choose headgear befitting the situation, top hat being one example. If fashion design is solely based on image perception, it will be difficult for a consumer market differentiation [2][3].

Further steps shall be taken to explore the differences in consumers' style preference and image perception to understand consumers' "kansei" or affective need regarding fashion. A social environment has tangible products (clothing, furniture, building, etc) and intangible concepts (education, law, etc). Product offers appearance as its first impression [4]; shoppers tend to make purchase based on a product's presented physical image. Product form and appearance can bring visual perception enough to influence purchase behavior. That is, form appearance can reflect people's psychological feeling toward that product. Therefore, product makers nowadays pay good amount of attention on product appearance in hopes of conveying suitable product image to consumers [5].

A hat, although carrying product values different from the all-familiar consumer electronics product, shoppers tend to follow the cognitive-affective process and the preferred needs to pick a suitable hat. According to research, almost 70% of scooter riders wash their helmet only once a year while some actually never wash theirs in five years [6]. A hat's usage and cleaning seem to point out attitude aspect in cognitive behavior. We can further explore factors in determining purchase decision of hat in terms of age group, gender difference and usage difference.

A hat's appearance and user habit can influence how consumers wear the product. This study begins with investigating hat's form appearance to understand consumers' form image perception toward product appearance and characteristics. This study looks into a variety of hat types, categorize them based on the form appearance, and analyze the images they bring using describing adjectives to obtain the usage elements. All these are done while removing the branding logo characteristics and are summarized in the four topics below:

- I. Compile a list of form descriptions about hat product
- II. Understand the circumstances that consumers use hats and their habits
- III. The variety of form image perceptions that consumers have toward hat product
- IV. Explore the design elements of hat product by analyzing words and vocabularies

2. Literature Review

This study explores the differences and relationship between usage consumption habit and hat form image perceived by consumers. Overall content concentrates on topics related to image, form and characteristics, describing adjective, and consumer behavior.

2.1 Image

Image, as a word, is widely utilized in the modern world [7]. Aristotle long ago established links between image and concept and that image originates from external agent acting as stimuli to sensory system [8]. Image and style are different in that image is of an internal product of mind and memory process, while style leans more toward the presentation of external conditions such as variety, category, and types. They are also differentiate from each other in how they are made that an image, starting with being a vague data saved in the brain, is being more visually presented after restructuring.

The communication aspect or role of design, product semantics being an example, needs to be differentiated from other design considerations and studied. This aspect involves visual and iconic cues that help people to explain what an object does and how it is operated or used [9]. Style needs to be uniquely presented, and it is formed after a period of nurture process. For presentation of characteristics and traits, image has the selfexplanatory, structural, and meaningful traits while having the simulating, abstract, changeable, and functional characteristics. Style has the attributable, structural, organizational, and individual traits while having the diversifying, categorizing, expressing and idea-stimulating ability

2.2 Form characteristics and perception

In the field of cognitive psychology, style perception is an attractive topic. Due to various growth stage, education and environment, individuals have logics and preferences different from each other. As one of the

renowned cognitive psychologist, Dr. Norman suggested that an incomprehensible user interface is a result of the design that ignores the cognitive behavior of human beings [10]. He also suggested the application of cognitive science that includes twelve issues and they are: Belief system, Consciousness, Development, Emotion, Interaction, Language, Learning, Memory, Perception, Performance, Skill, Thought.

Cognition is a complex mental process. It is a concept flow consisted of sensory, reflective, cognitive, and memory processor in a human system, from feeling to knowing. Norman also drew four ideas from the seven aspects mentioned above. Each view lists one or multiple steps that designers can use as references.

- I. Identifiability: Through observation, user can identify the state the product is in and choose appropriate actions.
- II. Good concept model: Designer needs to provide user with a good concept model that carries a systematic image showing consistency in operation, result, start to end process.
- III. Good system pairing: action taken and the result, controller and the relating reaction, system state and identifiability. The order and the causal relation of the aforementioned examples do need to exist.
- IV. Feedback: User can receive sufficient and continuous feedback related to action taken.

2.3 Adjectives

Through survey questionnaire, interview, literature review, the study collects a variety of descriptive words used in evaluation by designers, consumers, factory operators, managers, marketers, or critics. Vast amount of journals and researches also provide good sources in describing adjectives being a few examples [11][12]. Analytic Hierarchy Process (AHP) methodology can also draw out describing words and issue different weight accordingly [13]. Through the experience of designers and survey questionnaire, descriptive words are categorized into group patterns, and then coded to report in a more structured format for easy comparison. Designers have the responsibility to understand and care about users' cognitive habit to distinguish the difference between thinking and performance in different cognitive styles [14].

3. Research Method

This study collects information about consumers by using survey questionnaire, and then focus group organize and categorize all the words collected from survey. Statistical analysis is then performed to analyze the data.

3.1 Survey questionnaire and design

Survey is conducted both in paper-based and online format. Question types include the single answer, multiple choice and semi-open questions; all these to collect the factors influencing consumer cognition and behavior.

In terms of questionnaire design, first part shows participant's basic information which includes gender, age, and region of residence. Body height and weight are the basic body measurement that has no significant importance to the research and are not taken into consideration of the research. Second part of the questionnaire is divided into "measurement of subjective utility" and "relationship between product form and descriptive word", and these two categories are also the dependant variables in this study. The categories are to determine consumer's subjectivity toward the various uses of hat product, and the perception toward hat product form and descriptive word.

1. Elegant	2. Tacky	3. Youthful	4. Confident	5. Trendy
6. Unique	7. Old	8. Timid	9. Traditional	10. Common
11. Designful	12. Mediocre	13. Pure	14. Sexy	15. Tender
16. Macho	17. Daring	18. Conservative	19. Classic	20. Dull

Table 1. Variety of descriptive words

Survey collects about fifty various adjectives describing clothing and apparel; focus group is then able to organize and categorize them into twenty, as indicated in Table 1. As for the hat product form and name, this study removes the types that are too rare, excessively similar, or impractical to derive sixteen types, as indicated in Figure 1. Cross-comparison is planned to explore the relationship.



3.2 Consumer behavior

Consumer behavior is the study of the processes that consumers use to evaluate, secure, utilize, and dispose of products to satisfy needs and the impacts that these processes, mental activities and external presentations display. Consumers mainly go after functional and psychological benefits. Functional benefits are the basic fulfillment and practical value that product properties can provide; coats keep us warm, personal computers efficiently process data at work, provide entertainment, keep flight on time and land safely. Psychological benefits are the influence on mood, image, esteem, social status, intellect, spirit, or social connection when using or owning products; this type of benefits relate more to the sense of achievement, regards from others and self-actualization.

4. Results

This study involves statistical data that requires the semi-open question format. Paper-based survey is conducted face to face and online format is distributed to collect data. After the random sampling, twenty copies

of paper-based survey and thirty-four copies of online survey are collected. Valid data totals fifty-four with zero invalid survey. SPSS is then utilized to analyze the data.

4.1 Descriptive Statistics

4.1.1 Gender and location of residence

Among the fifty-four survey data collected in this study, as indicated in Table 2, twenty-six are located in northern Taiwan (15 male, 11 female), seven are located in the central part of Taiwan (4 male, 3 female), twenty-one are located in southern Taiwan (13 male, 8 female). Among the respondents, although the result received from the central part of Taiwan is less than the other regions, the study means to consider all three regions as a whole, not cross-comparing and analyzing the male and female in all three regions.

	Male	Female	Total
Location of Residence			
Northern Taiwan	15	11	26
Central Taiwan	4	3	7
Southern Taiwan	13	8	21
Total	32	22	54

Table 2. Data based on gender and geographic location

4.1.2 Age group and location of residence

The distribution of sample by age group is indicated in Figure 2. In northern Taiwan: 20-30 years old (4 people), 31-40 years old (3 people), 41-50 years old (none), 51-60 years old (8 people), 61 and above (11 people). In central Taiwan: 20-30 years old (5 people), 31-40 years old (2 people), 41-61 (none). In southern Taiwan: 20-30 years old (10 people), 41-50 years old (3 people), 51-61 and above (none). It is noted that in northern Taiwan, 19 respondents are older adults; there are none older adult respondents in central and southern Taiwan. We can still look into the significance of hat form and descriptive words among the older adults in northern Taiwan.



Figure.2 Bar chart showing distribution by age group and location of residence

4.2 Product usage and statistical data about the descriptive words

As indicated in Table 3, percentages of respondents who have the habit of hat wearing and the ones who do not are 38.9% and 61.1%, respectively, and that are estimated at 4:6 ratio. In terms of product usage, as high as 63% of the respondents wash their hats only when dirty, or perform unscheduled washing. Almost 20% of the respondents never wash their hats. Further improvement on headwear hygiene is desired.

Item	Male	Female	Total						
Do you usually wear a hat ? (Often wearing hat)									
Yes	11	10	21						
No	21	12	33						
How often do you clean your hat?	How often do you clean your hat? (Frequency of hat washing)								
Whenever it gets dirty	17	17	34						
Once a week	4	0	4						
About once a month	4	1	5						
Never	7	4	11						

Table 3. Data showing respondents' usage behavior



Figure.3 What kind of hats most likely to wear

It shows respondents' preferences among the sixteen types of hat if given the opportunity to choose. Among the male respondents, the easy-to-carry baseball cap (17 respondents), flat or ascot cap (7) are preferred and total big portion of the male respondents (24 out of 32) at 75%. Among the female respondents, baseball cap (5), fisherman cap (5), flat or ascot cap (3), wool cap (3), visor hat (3) are more popular compared to other hats, taking a 72.7%. Wide-brim hat, conical Asian hat, shawl hat, peaked cap, and bell shaped hat are not preferred by male or female. Among male respondents, other than the five hat type mentioned above not chosen, three are considered more "feminine" and therefore not chosen and they are wool cap, beret cap, visor hat. As for female respondents, other

than the aforementioned five types not chosen, cap, top hat and straw hat are not chosen, as well. This study finds it interesting that straw hat, assumed to be popular among females, is not chosen by any respondents. On the contrary, cowboy hat, considered to be more masculine, is chosen by one female respondent.

On the other hand, it shows the choices when the occasions are not considered. Among male respondents, baseball cap is the top choice, selected by 22. Among the female respondents, baseball cap (5 respondents), fisherman cap (4), wool cap (4), and visor hat (4) are the more preferred choices. The weather plays a big role in the choice of the hat type. Taiwan is located in the subtropics with ample sunlight and good amount of ultraviolet exposure that blocking out sunlight (weather factor) is one of the major factors for wearing hats (17 persons, 31.5%). Cloth matching (2 persons, 3.7%) or fashion styling (1 person, 1.9%) are of less importance.

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Wide brim hat	23	6		2	3	3	3	3		3	17	5	3	2	5	5		6	3	
Сар	6	2	18	1		8	3	1	1	3	4	12	3	4	2	2		3		8
Conical Asian hat		12	1	_	1	_	5	14		5	30	5		6	3			1	2	2
Wool cap	7		9	5	3	11	7	6		2	3	9	2	2	3	9		20	1	1
Cowboy hat		3	11	16	13	4	13	2			7		2		3		2		27	
Beret cap	11	1	4	5	5	14	14	1		1		1	13	1	5	6	7	7	3	
Peaked cap		6	5	6	1	1	3	5		13	11	7	1	9	1	1	1		11	10
Shawl hat	2	10		1	1	2	14	5	4	12	3	9	6	4	2	2	3	2		7
Straw hat	18	4	5	2	2	5	2	2		4	13	10	3		8	10	5	11	1	1
Baseball cap	4		38	12	1	8	3			4	4	8	7	4		2	1		11	5
Top hat	18	3	1	5	1	4	14	9		6	7		3		22				8	2
Fisherman cap	4	8	5	5		2	11	7	2	10	7	17	2	8	1	4		3		4
Cover ear cap	1	5	5		1		12	5	3	10	4	11	5	6	2	4	2	3	1	6
Visored cap	6	4	13	3	1	3	5	3		3	3	18	6	4		4	1	1	2	7
Ascot cap	13	1	6	11	1	4	9	7	2	5	4	8	13	2	4		1	2	8	2
Bell shaped hat	7	7			1	2	5	10	1	10	11	7	1	4	14	2	1	2	3	8

Table 4. Hat styles and matching description analysis

Among the sixteen types of hats in the discussion, "baseball cap" is heavily favored that forty respondents pick it as the "Most likely to wear" in Figure 3 shown. This can be interpreted that the modern pop culture, together with the appreciated style, are the main reasons that this style is highly preferred. Designers can lean toward making more of this type of hat.

Based on principle component analysis, Figure 4 shows five principle components having eigenvalues greater than 1 while the rest is less than 1. In Table 6, the KMO measures at 0.558. Large values for the KMO measure indicate correlations between pairs of variables can be explained by the other variables; this indicates that a factor analysis of the variables is a good idea. We should not do a factor analysis if the KMO value is below 0.5. As for Bartlett's Test of Sphericity, we arrive at a significance of 0.000 which shows variables to be correlated. With Varimax orthogonal rotation, the factor loadings representing correlation between the variables and the factors are shown in Table 5. The total cumulative variance explained by all factors is 81.198%.

	I	nitial Eigenvalu	es	Extraction	Sums of Square	ed Loadings	Rotation Sums of Squared Loadings				
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %		
1	5.848	29.242	29.242	5.848	29.242	29.242	4.061	20.304	20.304		
2	3.344	16.719	45.962	3.344	16.719	45.962	3.939	19.694	39.998		
3	3.232	16.161	62.123	3.232	16.161	62.123	3.193	15.967	55.965		
4	2.381	11.906	74.029	2.381	11.906	74.029	2.690	13.452	69.416		
5	1.434	7.170	81.198	1.434	7.170	81.198	2.356	11.782	81.198		
6	.909	4.546	85.745								
7	.808	4.042	89.786								
8	.663	3.317	93.103								
9	.440	2.199	95.302								
10	.285	1.427	96.729								
11	.263	1.315	98.044								
12	.229	1.146	99.190								
13	.093	.466	99.656								
14	.042	.209	99.865								
15	.027	.135	100.000								
16	1.072E-16	5.359E-16	100.000								
17	3.600E-17	1.800E-16	100.000								
18	-2.631E-17	-1.316E-16	100.000								
19	-1.862E-16	-9.310E-16	100.000								
20	-2.065E-16	-1.032E-15	100.000								

Table 5. Total Variance Explained

Extraction Method : Principal Component Analysis

Table 6. KMO Value and Bartlett's Test of Sphericity

Kaiser-Meyer-Olkin Measure of Sam	.558	
Bartlett's Test of Sphericity	Approx. Chi-Square	407.056
	df	120
	Sig.	.000

Table 7. Factor name and the descriptive word variables

Factors	Names	Descriptive word variables
Factor 1	gentle/graceful	Elegant, tender, pure, attracting
Factor 2	retro/understated	Old, traditional, conservative, timid
Factor 3	normal/ordinary	Tacky, common, mediocre, dull
Factor 4	self-expression	Youthful, confident, daring, macho
Factor 5	fashionable/trendy	Trendy, unique, designful, classic



Figure.4 Scree Plot

5. Discussion and Conclusions

In the past it was believed that some consumers assume long duration of hat wearing can cause baldness or hair loss; however, it is discovered that consumers do not necessarily worry about it. The majority of the participants simply do not see the necessity of hat wearing. Baldness and hair loss both are related to natural physical functioning of the human body, not the effect of hat wearing in terms of casual relationship. Without the need to wear hat there will not be hat wearing behavior. However, medical experts do suggest cleaning hats at least once a week to avoid diseases caused by germs.

Finally, future research can be conducted to further examine the descriptive words obtained and categorized here, in addition to the more analysis of factors to help better explain the factors.

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