

PREFERENCE-BASED ANALYSIS OF BLACK PLASTIC FRAME GLASSES

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ABSTRACT

Since the innovation of plastic, it has become a popular material for the frames of eyeglasses. Among them, black plastic is a classic type which has been very popular from the beginning. Black plastic has even been connected to fashion symbols. It would become a fashion once a few years. Celebrities in many countries wear black plastics eyeglasses in their private times, especially in Taiwan. There are about 70% consumers choose to wear black plastic glasses in Taiwan. Why the black plastic could become a fashion again and again? The main purpose of this study was to find out the charm factors of the black plastic glasses, and the different point of view between the users and non-users.

In this study, the definition of black plastic glasses was defined in the beginning. Based on this definition, forty-eight pictures of black plastic eyeglasses had been selected. Eight people sensitive to black plastic were invited to do the interview. Then, a relation model of the charm factors was built by **expert group meeting** (EGM) method. Via questionnaire, 60 users and 60 non-users showed their opinions on the charm factors. Then the data of experiment were analyzed by Quantification Theory Type I.

This study offered designers the different points of view of users and non-users of the black plastic glasses. Designers can apply the results to design black plastic glasses for different markets as well as to design similar products

Keywords: *Kansei Engineering, Black Plastics Eyeglasses, EGM, Quantification Theory Type I*

1. LAYOUT INSTRUCTION

In the culture of fashion and consumption, many things appeared for only one time and have never shown up again. But seldom objects come back to the stage of fashion again and

again, with the same or little different appearances, as the time flow. This kind of objects must have some specialty which can pass the test of different ages. Black plastic glasses are one of it. Nana Mouskouri, the great Grecian singer, has sung over forty years. The thing that people are impressed most, beside her voice, is her big black plastic glasses. Equally, the choices of black plastic glasses by many celebrities also affect the trend of fashion.

In a recent investigation of Taiwanese glasses market, 35% people of young group chose black plastic glasses. It shows how big the market of black plastic glasses and how great its charm is. This study is to provide designer a new point of view to figure out the different recognition of the users and non-user of black plastic glasses. Also, this study shows the main view point by these two groups. Designers can use the consequence to the design of black plastic glasses, and abstract the potential consumers.

2. METHODOLOGY

2.1. Text

The main text should be in 11pt, justified left, with 1.2-interline space. Between paragraphs, there should be a space of 11pt.

2.1.1. Definition of samples of black plastic glasses

Before choose the pictures of black plastic, we must define the definition of it. Following are the standers defined by the material, construction and color of black plastic glasses:

- I. The main color of the frame is black
- II. The main material of the fame is plastic
- III. The glasses are transparency



Figure 1: Standard Sample



Figure 2: Samples do not fit the rule

2.1.2. Collection of samples

In this step, we collected 120 pictures of black plastic glasses of different brands in the market. After, we selected 48 pictures which are clear and fit the rules above. Table 1 show 9 of the 48 pictures.

Table 1: Samples

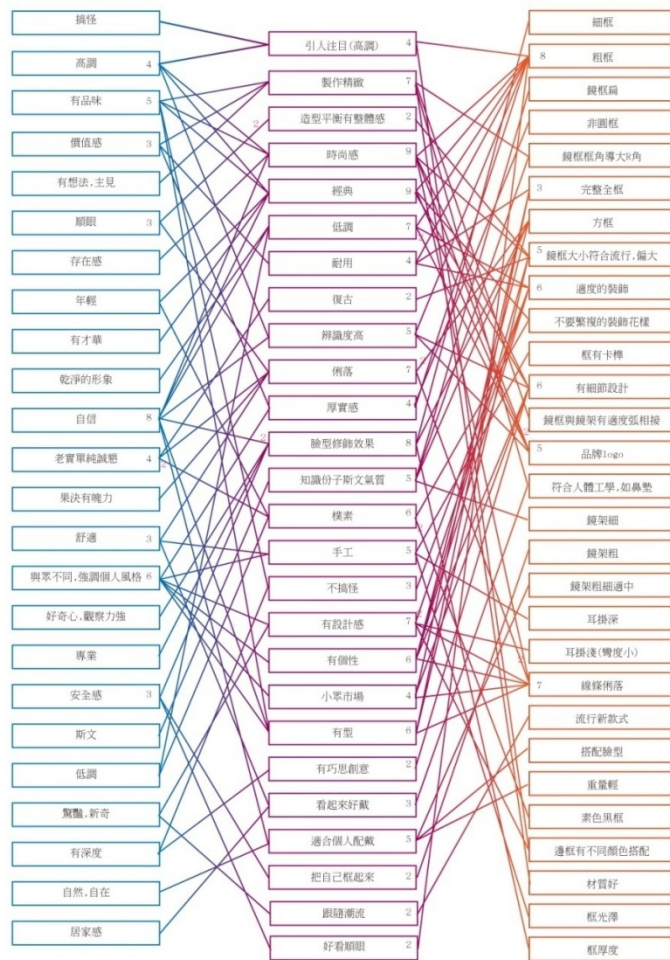
		
		
		

2.1.3. Interviews of sensible people

- I. We chose 4 male and 4 female who are sensible with black plastic glasses and had deep interviews for about one hour.
- II. We asked sensible people to separate the pictures of black plastic glasses into groups by their appreciation. The more groups the better.
- III. We asked the sensible people how they separated the pictures, and build the original judgment items.
- IV. Due to the original judgment items, we ask for the lower items(concrete items) and the upper items(abstract items).

After these steps, we got the EGM table as following:

Table 2: EGM



According to the eight sensible people, the attractiveness can be ordered like the picture below:

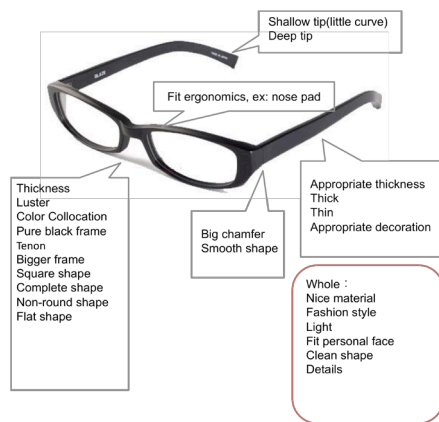
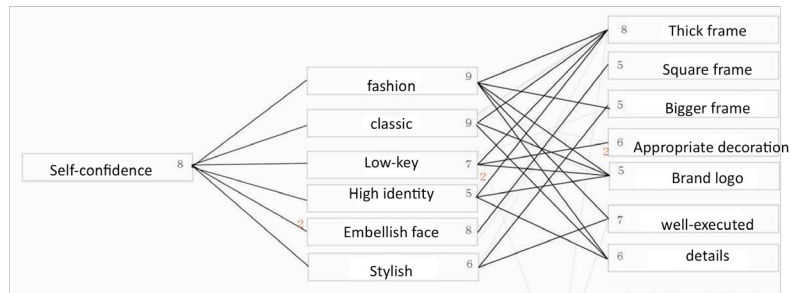
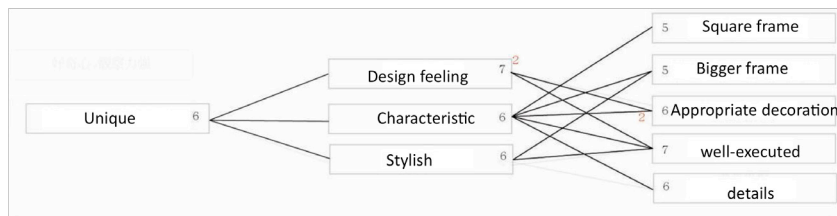


Figure 3: Attractiveness

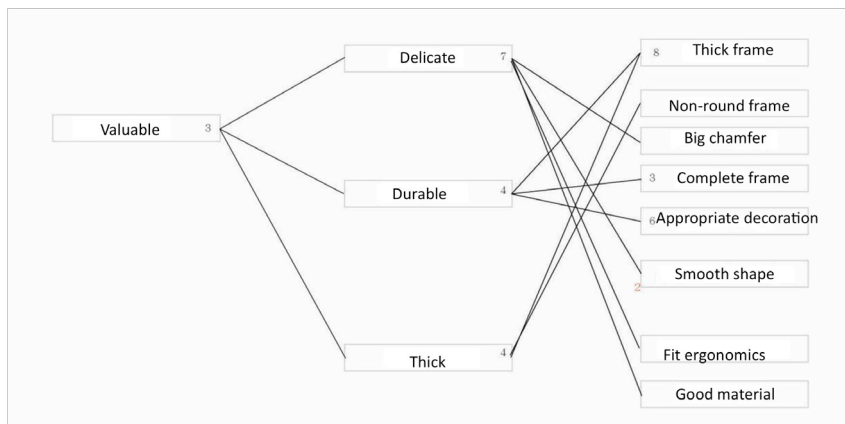
Separate the EGM table into several parts by the time the items match:



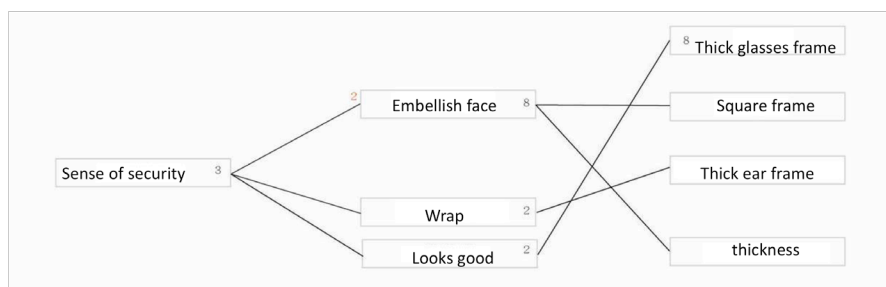
The essential factors of a “glasses of self-confidence” are fashion, well-executed shape. Appropriate decoration also needed.



The essential factors of a “unique glasses” are appropriate decoration, and well-executed shape, too. This two factors are which sensible people emphasize on.



For sensible people, a “valuable glasses” must be durable and delicate. The thickness also makes it more valuable.



The wrap of vision make a glasses has “sense of security”. Also, the thick frame can embellish users’ faces and make them feel secure.

2.1.4. KJ

According to the up item of the EGM table, we use KJ method to separate it into three groups:

Table 3: Three groups

Characteristic	Self-confidence	Comfort
gentle	secure	home-style
honest	safe-look	comfortable
low-key	existing	ease
young		clean
spool		
novel		
high-key		
professional		
deep		
strong-minded		
resolute		
talented		
unique		
tasteful		
valuable		

3. QUESTIONARY AND ANALYSIS

According to the result of KJ method and EGM, a questionaty had been made. 50 subjects took the questionnaire, and marked the down items which they think would affect the feeling of up items and decided the degree the lower items affect. We use SPSS to get the result of Quantification Theory Type I. Following is the result:

Table 4: Self-confidence

item	category	Self-confidence(User)		Self-confidence(Non-user)	
		item score	Biased Correlation Coefficient	item score	Biased Correlation Coefficient
Looks Good	Fit face		0.372572		0.582344
	Appropriate thickness	-2.12402			0.963501
Attractive	Appropriate decoration	0.312808	-4.55285	-4.55285	
	Thick frame	0.098678	-1.04119	-1.04119	0.372945
	Color collocation	0.111151	-0.85961	-0.85961	
Fashion	Gorgeous decoration	-1.0305			2.822963
	Staring decoration		0.091302		1.969178
	Brand	3.536119	-3.577	-3.577	0.449437
Embellish face	Style fit fashion	-0.47286			0.319638
	well-executed	-0.15076			1.245117
Wrap Eyesight	Thick frame	0.398403			2.096775
	Thin frame	0.097645			2.670038
	Shape of frame	-0.32989	-1.39347	-1.39347	
	Black frame	1.74862			1.903134
constant	Depth of frame	-1.34937	-3.09841	-3.09841	0.353311
	Thickness of frame	1.201771			0.856021
	Complete frame	-0.01842			0.173593
	Wdith	-0.14579			1.319749
Multiple correlation = 0.460194927877152		Multiple correlation = 0.690938386665794			
R ² = 0.211779371643857		R ² = 0.477395854168331			

About Self-confidence, the multiple correlations of user and non-user are both over 0.02, and that means the consequence is obvious.

Table 5: Characteristic

item	category	Characteristic(User)		Characteristic(Non-user)	
		item score	Biased Correlation Coefficient	item score	Biased Correlation Coefficient
honest	Bigger frame		1.145857	0.314442	
	All-black frame	-1,01783			-0,83928
	Square frame		0,406183		-6,45745
	Round frame		1,571511		2,635571
	Complete frame	-0,19669			0,026783
unique	Half frame		1,009061		2,893324
	Delicate details	-0,04281		0,162975	0,376816
	Brand LOGO		1,474745		-2,63947
	Luster	-0,35428			1,255301
tasteful	Appropriate decoration		0,206175		-2,84195
	Square frame		0,745502	0,300292	
	Hand-made	-0,24689			3,426886
	Appropriate decoration details	-0,598			3,228449
	well-executed	-0,48512			0,041059
professional	Shallow tip (little curve)		2,132769		-0,94274
	Round frame	-3,29113		0,338164	
	Thick frame		1,071819		-3,05454
	Thin frame	-0,29487			8,452584
	well-executed		0,264278		0,262313
strong-minded	Creative		0,450581	0,197587	-2,1167
	How		0,657889		4,222442
	Details	-1,02164			1,154575
	Delicate	-0,36175			-11,6625
	well-executed	-0,53736			3,939412
Constant		110,5833		129,90629	
Multiple correlation = 0.545625660832814		Multiple correlation = 0.804993288495356			
R²= 0.297707361759244		R²= 0.648014194522567			

About Characteristic, the multiple correlations of user and non-user are both over 0.02, and that means the consequence is obvious.

Table 6: Comfort

item	category	Comfort(User)		Comfort(Non-user)	
		item score	Biased Correlation Coefficient	item score	Biased Correlation Coefficient
Comfortable	Fit ergonomics(Frame)	-0,81599		0,282481	0,739713
	Fit ergonomics(Nose pad)		0,645987		-0,23577
	Weight		0,346756		-7,53349
	Hand-made	-1,66397			3,024411
	Material	-0,69533			2,702614
Clean feeling	Thick frame	-2,20401		0,261372	
	Thin frame		0,756248		2,845916
	Shape of the frame	-0,7698			-0,87351
	well-executed		0,280005		0,200694
	All-black frame	-0,47501			-2,43303
Free and easy	Thick frame		0,023862	0,168557	-1,03416
	Thin frame	-1,6425			0,002942
	All-black frame	-0,0484			-0,50199
	well-executed		0,245309		0,416435
	Constant		11,96667		11,00375
Multiple correlation = 0.3957442489860		Multiple correlation = 0.585850959128263			
R²= 0.156613510605549		R²= 0.343221346311504			

About Comfort, the multiple correlations of user and non-user are both over 0.02, and that means the consequence is obvious.

3.1.1. Analyzes:

Self-confidence:

Table 7: Self-confidence

Middle item	User(lower item)	Non-user(lower item)
Looks Good	Fit face	Appropriate thickness
Attractive	Color collocation	Gorgeous decoration
Fashion	Brand	well-executed
Embellish face	Black frame	Thick frame
Wrap Eyesight	Thickness of frame	Width

User:

Fashion → Looks Good → Wrap Eyesight → Embellish face → Attractive

In this topic, fashion is the key point of self-confidence for users. Among which, brand is biggest factor. But people in this group have different opinions, not so identical.

Non-user:

Embellish face → Looks Good → Fashion → Attractive → Wrap Eyesight

In this topic, non-users have identical opinions. Because of having little knowing about brand, it is not their first choice. They looks forward that the glasses can embellish their faces, but have no exact image about which kind would work.

“Wrap eyesight” is the last choice for non-users. Maybe it is because that they have no experience about that. Compare with non-users, users care more about it. They think the thickness is the main factor of “wrap eyesight”

Characteristic:

Table 8: Characteristic

Middle item	User(lower item)	Non-user(lower item)
Honest	Round-frame	Bigger frame
Unique	Brand LOGO	Luster
Tasteful	Well-executed	Square-frame
Professional	Thick-frame	Thin-frame
Strong-minded	New style	New style

User:

Professional → Honest → Tasteful → Strong-minded → Unique

For users, they think thick-frame black plastic glasses and make the image of profession. And round-frame and half-frame represent the image of honest. To make the tasteful image, they think well-executed shape is the key point. Actually, “unique” is not the main direction for users any more.

User:

Strong-minded → Honest → Professional → Unique → Tasteful

Maybe because they are not the consumer of black plastic glasses, non-users consider the users are string-minded. And the reason why they have little image of tasteful glasses might because they usually see the most popular and normal styles.

About “profession”, users think thick frame can represent this image. But non-users think thin frame can.

And knowledge affected a lot in this topic. Because some items, luster and handmade, for example, are too professional. Non-users has little knowing about that, so seldom of them chose these kind of items.

Comfort:

Table 9: Comfort

Middle item	User(lower item)	Non-user(lower item)
Comfortable	Fir ergonomics(nose pad)	Handmade
Clean	Thin-frame	Thin-frame
Free and easy	Well-executed	Well-executed

User:

Comfortable → Clean → Free and easy







Because users have more experience about using the glasses, they have more complete concept about comfort. They think nose pad is a very important factor of comfortable. They think material and colors affect just a little in this topic.

Non-user:

Comfortable → Clean → Free and easy

In this topic, the non-users' and users' sequence of middle items are the same. But actually, the choices of lower items of non-users are scattered. That might because non-users have little or no experience of wearing black plastic glasses, and they can only judge by the literal meanings.

Table 10: the representation of each topic

	User	Non-user
Characteristic		
Self-confidence		
Comfort		

4. CONCLUSION

For the knowing of black plastic glasses and using experience, users and non-users have very different recognition. That means, non-users are affected easily by the appearance of

glasses and the literal meaning of description. Designer can put effort on the looks of glasses, and use the factors mentioned above to attract the non-user group and enlarge the market. For the users' market, designer must control the factors which affect users' feeling well, and provide newer and nicer wearing experience.

This study is focus on the appearance of black plastic glasses, and has no discussion about the image after wearing it. About this topic, the research direction next can be focus on it. For example, the match of shapes of frame and faces can make this study more complete.

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