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Application of Kansei Engineering and Data Mining for the Eyewear Industry in Jakarta

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Abstract

The importance of eyeglasses is increasing in the present day. Myopia has a significant increase globally, with the highest prevalence of myopia in Asia-Pacific, East Asia, and Southeast Asia. Girls are more prone to suffer myopia and have more risk factors than boys in Asia. As eyeglasses' uses started to be more progressive at age 6 to 22 years, the purpose was to identify the Kansei words and to translate them into authentic eyeglasses design that teen girls in Jakarta desire. One hundred teen girls had contributed to this study by comparing 16 Kansei words, including modern, elegant, casual, beautiful, comfortable, attractive, good quality, aesthetic, trendy, light weight, practical, durable, affordable, strong, fit to hand and ergonomic against ten eyeglasses pictures. Data mining method was applied to find the connection between eyeglasses' whole appearance and emotions captured in a shorter time. This experiment achieved decision tree classification and association rules technique with Waikato Environment for Knowledge Analysis (WEKA). The best Kansei design of eyeglass for teen girls is round shape, titanium material, light-colored, full-frame, and plain surfaces.

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Keywords: eyeglasses, Kansei Engineering;teen girls;data mining; WEKA.

1. Introduction

Myopia has become one of the significant issues in the public health world; it contributes to visual impairment affecting all age groups, from children to adults. Myopia is most correctable with spectacles and contact [1]. It has been accepted as an epidemic titled "The Myopia Boom," especially in East and Southeast Asia [2]. It is estimated that myopia will significantly increase prevalence globally, affecting almost roughly 5 billion people by 2050. Table 1 shows the estimated prevalence of myopia by 2050 for each region [3]. As seen in Table 1, myopia's highest prevalence is Asia-Pacific, East Asia, and Southeast Asia, meaning that a notable rise in myopia has attacked Asia. The prevalence of myopia in young adults, especially in some of the developed countries of East and Southeast Asia, is now over 80% [4].

Meta-analysis research [5] includes studies of the prevalence of myopia characteristics based on race, and Indonesian young adults aged 21 – 50 years old reached 48.5 %, which makes Indonesia's prevalence of myopia pretty high [6]. According to many studies, girls are more prone to suffer from myopia and have more risk factors than boys in Asia, mentioned in [7]; girls have a higher prevalence of myopia than boys in urban China, India, and Malaysia. The higher prevalence of myopia in girls was also stated in a study [8]. These reflect a consistent pattern that female subjects are more likely to use a pair of eyeglasses than male subjects. In order to focus on teen girls in their youth as the segmented market, the eyewear industry must design a pair of eyeglasses beyond their functional requirement.

Table 1. The estimates prevalence of myopia between 2000 – 2050 for each decade.

	Prevalence (%) in Each Decade					
Region	2000	2010	2020	2030	2040	2050
Andean Latin America	15.2	20.5	28.1	36.2	44.0	50.7
Asia-Pacific, high income	46.1	48.8	53.4	58.0	62.5	66.4
Australia	19.7	27.3	36.0	43.8	50.2	55.1
Caribbean	15.7	21.0	29.0	37.4	45.0	51.7
Central Africa	5.1	7.0	9.8	14.1	20.4	27.9
Central Asia	11.2	17.0	24.3	32.9	41.1	47.4
Central Europe	20.5	27.1	34.6	41.8	48.9	54.1
Central Latin America	22.1	27.3	34.2	41.6	48.9	54.9
East Africa	3.2	4.9	8.4	12.3	17.1	22.7
East Asia	38.8	47.0	51.6	56.9	61.4	65.3
Eastern Europe	18.0	25.0	32.2	38.9	45.9	50.4
North Africa and Middle East	14.6	23.3	30.5	38.8	46.3	52.2
North America, high income	28.3	34.5	42.1	48.5	54.0	58.4
Oceania	5.0	6.7	9.1	12.5	17.4	23.8
South Asia	14.4	20.2	28.6	38.0	46.2	53.0
Southeast Asia	33.8	39.3	46.1	52.4	57.6	62.0
Southern Africa	5.1	8.0	12.1	17.5	23.4	30.2
Southern Latin America	15.6	22.9	32.4	40.7	47.7	53.4
Tropical Latin America	14.5	20.1	27.7	35.9	43.9	50.7
West Africa	5.2	7.0	9.6	13.6	19.7	26.8
Western Europe	21.9	28.5	36.7	44.5	51.0	56.2
Global	22.9	28.3	33.9	39.9	45.2	49.8

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Ergonomics is an interdisciplinary science; the study of human activities in the workplace and life environment [9]. Ergonomics are not limited to controlling the workplace, but considering further domains, including product design. Responding to customer trends, needs approaches to make an appropriate connection between emotional aspects of design and products. Kansei Engineering is a multidisciplinary methodology found by Mitsuo Nagamachi that embodies product design and is appropriate with the principles of ergonomics. A Kansei product that converts the user's needs into tangible features can be ergonomic.

Many researchers are currently focusing on developing many approaches in product design, and some are known as 'voice of customers' for prioritizing customer needs [10]. Kansei Engineering is a new product development technology to identify 'voice of customers' by creating a human-oriented product and captive consumers' emotions [11]. Kansei Engineering itself has been used in many studies on product design [12]. A few prior studies of Kansei were applied to many goods and services like automatic boards [13], a recliner [14], car seat lever position [15], real estate consumer preferences [16], airline services [17], and many more. Nonetheless, because many elements compose a product, most previous studies on Kansei Engineering focused only on one item of design element to one degree of emotion. While in everyday life, consumers become aware of things as a whole rather than an individual part of a product; therefore, it might not be the most effective way to compose a KE study for each element [18]. One way to help is with Data Mining Technology.

Data mining is the process of exploration and analyzing a large quantity of data to discover basic patterns and rules formed to develop their marketing, sales, and customer support operations [19]. According to Hand et al. [20], data mining is described as analyzing massive datasets to discover the unsuspected relationship and review data more logically. It serves the desired results while in this case is to identify the relationship between a product appearance and the emotion captured by the customer after seeing it. One of the technology of data mining is WEKA, a machine learning toolkit by the University of Waikato, an easy interface to understand & access for the public. It works well for beginners [19, 21, 22].

Data mining tasks are grouped into two main categories; Predictive and Descriptive. Fayyad et al. [23] defined six primary data mining functions: classification, regression, clustering, dependency modeling (association rules), deviation detection, and summarization. Classification, regression, and anomaly detection are categorized under a predictive category, while clustering dependency modeling are categorized under a descriptive category. Predictive model forecasts use some variables in the dataset to predict unknown values of other relevant variables [21,22, 24]. In contrast, a descriptive model classifies patterns or relationships and encompasses human understanding patterns and trends in data [25].

The combination of Kansei and data mining is to find the connection between a pair of eyeglasses' whole appearance and the emotions felt or captured by customers in a shorter amount of time. This study aims to satisfy customers' affective needs by determining the Kansei words and translating them into the actual design of eyeglasses desired by girls residing in Jakarta, Indonesia. The best combination of attributes, that form eyeglasses, to capture the potential market will be identified.

2. Methods

2.1. Step 1 – determine the subject

One hundred subjects who wear eyeglasses took part in the study. In their youth between the ages of 15 to 24, teen girls residing in a particular region, Jakarta (senior high school and undergraduate students), were selected for the field study.

2.2. Step 2 – eyeglasses images

A set of eyeglasses images were huddled from various advertising websites, including all the exterior views of the product, such as color, surface pattern, and shape. The images used in the study include 25 eyeglasses samples. They were printed in color for experts to evaluate.

2.3. Step 3 – development of the field study

An interview with four refractions opticians from Optik Melawai, Optik Seis, and Optik Tunggal as experts were done to construct the eyeglasses design elements and attributes. They have been informed about the study objectives and asked to evaluate the exterior view of 25 eyeglasses images. Then, they were asked to help narrow it down to the top 10 most likely to be bought by girls based on their experience as an optician, then identify the eyeglasses properties/design elements and attributes as shown in Figure 1.

Figure 1. Eyeglasses samples selected for evaluation

2.4. Step 4 – determine Kansei words

Firstly, Kansei words were collected by turning many websites, literature, and journals related to this field study and interviewing five girls who fell into the selected subject category. About 30 Kansei words were gathered, as shown inTable 2.

2.5. Step 5 – questionnaire 1

Secondly, the initial 30 Kansei words must be filtered to only the most important ones since 30 was still too many for each subject to evaluate. A preliminary questionnaire was distributed through google form to narrow it down. Respondents were asked to evaluate each Kansei word using the 5 points semantic differential scale of 1. The Kansei word is not a vital perception variable on eyeglasses. The Kansei word is a significant perception variable on eyeglasses to scale five. One hundred and one

subjects filled out the google form resulting average score for each Kansei word. If the average score of each Kansei word were more significant than the relative average score of all 30 Kansei words, those would be the selected Kansei words as most important (Table 3).

Sixteen most important Kansei words were selected: Modern, Elegant, Casual, Beautiful, Comfortable, Attractive, Good Quality, Aesthetic, Trendy, light Weight Practical, Durable, Affordable, Strong, Fitness to Fingers and Ergonomic.

Table 2. Kansei words are taken from the observation

Kansei Words	Sources
Modern	[22,26]
Antique/Vintage	Interview
General/Common	[12,14]
Elegant	[14,15,26, 27]
Unique	Interviews
Formal	[11,12,15, 27]
Casual	[14,15, 26]
Beautiful	[12,14,15,26]
Cute	[12, 14,15]
Fancy	[12, 14, 15]
Feminine	[26]
Masculine	[11,12, 18]
Simple	[26, 27]
Comfortable	[26, 27]
Innovative	Websites (eye-book.com)
Attractive	Websites (eye-book.com)
Good Quality	[12, 14,15]
Aesthetic	Websites (eye-book.com)
Exclusive	[12, 14,15, 18]
Eye-Catching	Interview
Young-Looking/Youthful	[18, 26]
Trendy	[18, 26]
Light-Weight	[11,12, 18]
Practical	[22,26]
Edgy	[26]
Durable	[14,15, 22]
Affordable	[14,15, 18, 22]
Strong	[14, 15, 26]
Fitness to Fingers/Hand	[14,18, 26]
Ergonomic	Interview

2.6. Step 6 – questionnaire 2

In this phase, ten selected eyewear frame pictures and 16 Kansei words were put together as the main questionnaire using a 1 to 5 semantic differential technique scale by Osgood (Figure 3). The purpose of this phase was to evaluate how teen girls felt the moment they saw the eyeglasses picture as a product sample. One hundred questionnaires were printed and distributed individually offline for teen girls residing in the Jakarta area with an age range between 15 to 24 years old. The 5-level semantic differential was managed with sixteen Kansei words in negative-positive format. For example, if a respondent filled out scale number 5 on the Kansei word Comfortable against the first picture, the respondent felt comfortable with the first configuration of product properties. However, if a respondent filled out scale number 1 on Kansei word and completed it against the first picture, the respondent would feel that the first configuration of product properties was uncomfortable (Figure 2).

Table 3. The average score for each Kansei word

Kansei Word	Respondents	Total	Average
Modern	101	376	3.72
Antique/Vintage	101	274	2.71
General/Common	101	326	3.23
Elegant	101	385	3.81
Unique	101	322	3.19
Formal	101	307	3.04
Casual	101	390	3.86
Beautiful	101	420	4.16
Cute	101	291	2.88
Fancy	101	328	3.25
Feminine	101	304	3.01
Masculine	101	256	2.53
Simple	101	348	3.45
Comfortable	101	471	4.66
Innovative	101	361	3.57
Attractive	101	398	3.94
Good Quality	101	462	4.57
Aesthetic	101	399	3.95
Exclusive	101	330	3.27
Eye-Catching	101	237	2.35
Young-Looking/Youthful	101	353	3.50
Trendy	101	370	3.66
Light Weight	101	436	4.32
Practical	101	438	4.34
Edgy	101	357	3.53
Durable	101	451	4.47
Affordable	101	418	4.14
Strong	101	401	3.97
Fitness to Fingers/Hand	101	365	3.61
Ergonomic	101	375	3.71
Relative Average			3.61

2.7. Step 7 – data processing

In total, 100 questionnaires were sorted into datasets for each emotion or Kansei word. The datasets were then processed by applying the decision tree classification technique and then association rules mining provided through WEKA Machine Learning.

3. Results and Discussions

3.1. Sample profile

Most of the respondents were aged 18-20 years old and in detail three teen girls aged 16, 1 girl aged 17, 24 girls aged 18, 25 girls aged 19, 24 girls aged 20, 1 girl aged 21, 9 girls aged 22 and 1 aged 23. In total, 95 respondents out of 100 were university students. The respondents with minus below 1 were eight girls, minus 1-2 were 33 girls, minus 2-3 were 23 girls, minus 3-4 were 13 girls, minus 4-5 were 17 girls, and with minus more than 5 were six girls. There were 50 teen girls with Optik Melawai as their favorite store and about 49 teen girls willing to spend money on eyeglasses for IDR 1,000,000 to IDR 2,000,000. Eyewear companies and designers can take these data into account on creating eyeglasses for the intended market.

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1.

Is the selected picture match the kansei word?

Traditional	1 2 3 4 5	Modern
Inelegant	1 2 3 4 5	Elegant
Formal	1 2 3 4 5	Casual
Ugly	1 2 3 4 5	Beautiful
Uncomfortable	1 2 3 4 5	Comfortable
Unattractive)	1 2 3 4 5	Attractive
Poor Quality	1 2 3 4 5	Good Quality
Displeasing	1 2 3 4 5	Aesthetic
Outdated	1 2 3 4 5	Trendy
Heavy Weight	1 2 3 4 5	Light Weight
Impractical	1 2 3 4 5	Practical
Impermanent	1 2 3 4 5	Durable
Expensive	1 2 3 4 5	Affordable
Fragile	1 2 3 4 5	Strong
Not fit	1 2 3 4 5	Fit to hand
Unsuitable	1 2 3 4 5	Ergonomic

Figure 2. Kansei word questionnaire

3.2. Eyeglasses properties

The interviewees were asked to identify the eyeglasses properties/specs then to matched them with each eyeglasses image. Eyeglasses specs and sample properties are stated in Figure3 and Table 4.

1. Frame Shape	a. Pilot	b. Cat Eye	c. Round	d. Oval	e. Rectangle	f. Square
2.Material	a. Titanium	b. Plastic	c. Metal	d.Stainless		
3. Frame Type	a. Full Frame	b. Half Frame	c. Rimless			
4. Overall Color	a. Dark Color	b. Medium Color	c. Bright Color			
5.Surface	a. Plain	b. Gradient				

Figure 3. Eyeglasses properties

3.3. Decision tree

A random tree algorithm with ten cross-validations was employed in a decision tree to form a classification model in a tree shape that can be translated into a combination of eyeglasses design attributes satisfying the affective needs of teen girls in Jakarta. Random Tree was selected. Sixteen trees illustrated the set combination of eyeglasses design elements and attributes affecting teen girls' emotion significantly. The best rules are: Strongly Agree (SA) and Agree (A) due to Class: Emotion. Each tree figure contains 13 to 21 leaf nodes meaning there are 13 to 21 rules formed for each Kansei word or emotion from the root node to the bottom. For example, in Figure 4, regarding the round as frame shape, titanium as material combines with the color of bright affects teen girl's emotion aesthetic significantly.

3.4. Association rules

As stated in the theoretical background, decision tree classification is a predictive class-by-class approach, while association rules mining is a descriptive approach; it can predict any attributes that were not formed in the decision tree. By combining those 2, we were able to put together as many rules as possible, and it can be used as a knowledge-based or like a dictionary in eyeglasses product design. Rules by decision tree classifier and association rules are listed in Table 5 and Table 6. In Table 5, one of the best rules that significantly affect teen girls' emotion of Beautiful is a pair of round-shaped eyeglasses, made of titanium, full-frame with bright colors.

While with association rules in Table 6, every rule can be measured its worth based on confidence and support degree. The best ones are the ones with the highest support degree. For instance, in Table 6, the best results from the association rules can be identified depending on the selected emotion such as a pair of eyeglasses made from titanium and plain patterned is the most related design for the emotion of attractive with the highest support degree of 0.140

4. Conclusions

Fifty final rules from the decision tree classifier and thirty-five rules from association rules mining were organized as knowledge-based to find the relationship among eyeglasses design elements, attributes, and emotions girls felt upon seeing them. This study investigated each rule from a different point of view, not from the tree or measuring the support degree, but by establishing how many Kansei words the rules satisfied. Since the grounds were to determine the best eyeglasses design with the KE approach focusing on consumer-centered way, and based on their most important Kansei words, the best design can satisfy all the basic emotions or affective needs, not just one emotion or two but more emotions and passions.

The best attributes for frame shape are round and oval. The best attributes for material are Plastic, titanium, and Metal. The best attribute for overall color is bright, and the surface is patterned. When we combine those best attributes, one possibility of the combination was already applied in Eyeglasses Sample Number 5. It is a pair of eyeglasses shaped round, full-frame, titanium, light-colored, and plain patterned on the surface. This design is suggested for eyewear companies and designers to be propagated in production (Figure 5).

This research proposes the usage of classification and association rules, which are the most common data mining methods to extract rules and predict the most appealing model. However, still, some further works are suggested (1) Other data mining methods, such as Clustering can be applied, (2) Using another Machine Learning besides WEKA for a more extensive dataset (3) and adding more sample pictures in the future study.

Figure 5. Most appealing design

5. Acknowledgement

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Table 4. Product properties of eyeglasses samples

Eyeglasses Sample	Frame Shape						Material			
	Pilot	Cat Eye	Round	Oval	Rectangle	Square	Stainless	Titanium	Plastic	Metal
Sample1		v							v	
Sample2				v					v	
Sample3					v					v
Sample4					v				v	
Sample5			v					v		
Sample6			v					v		
Sample7	v							v		
Sample8			v				v			
Sample9				v						v
Sample10			v	`					v	

Eyeglasses Sample	Frame Type			Color			Surfaces	
	Full Frame	Half Frame	Rimless	Dark	Medium	Bright	Plain	Gradient
Sample1	v				v			v
Sample2	v				v			v
Sample3	v					v	v	
Sample4	v			v			v	
Sample5	v					v	v	
Sample6	v			v			v	
Sample7	v					v	v	
Sample8	v				v			v
Sample9	v			v			v	
Sample10	v			v				v

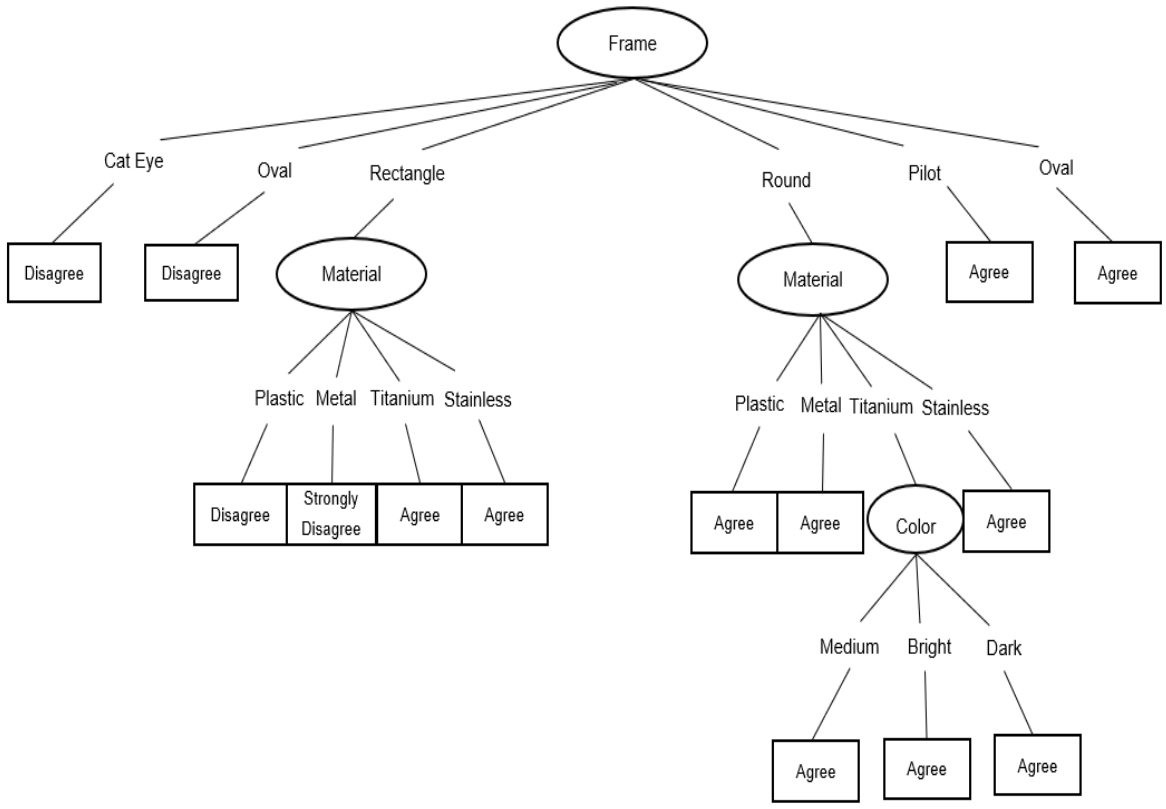

Figure 4. Decision tree for the emotion of 'Aesthetic'

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Table 5. Decision tree rules

No	Rules	Result	Kansei Words
1	Cat Eye - Plastic - Full Frame	Agree	Beautiful, Comfortable, Durable, Ergonomic, Fit to Hand, Good Quality, Light Weight, Practical, Strong
2	Oval - Plastic - Full Frame	Strongly Agree	Attractive, Comfortable
3	Oval - Plastic - Full Frame	Agree	Attractive, Beautiful, Comfortable, Durable, Elegant, Ergonomic, Fit to Hand, Good Quality, Light Weight, Practical, Strong, Trendy
4	Rectangle - Plastic - Full Frame	Agree	Durable, Comfortable, Ergonomic, Fit to Hand, Light Weight, Practical, Strong
5	Round - Plastic - Full Frame	Agree	Aesthetic, Affordable, Attractive, Casual, Comfortable, Durable, Elegant, Ergonomic, Fit to Hand, Good Quality, Modern, Practical, Strong, Trendy
6	Pilot - Plastic - Full Frame	Strongly Agree	Attractive, Comfortable
7	Pilot - Plastic - Full Frame	Agree	Beautiful, Durable, Elegant, Ergonomic, Good Quality, Light Weight, Practical, Trendy
8	Cat Eye - Metal - Full Frame	Strongly Agree	Attractive, Comfortable
9	Cat Eye - Metal - Full Frame	Agree	Beautiful, Durable, Elegant, Ergonomic, Good Quality, Light Weight, Practical, Trendy
10	Oval - Metal - Full Frame	Strongly Agree	Attractive, Comfortable, Light Weight
11	Oval - Metal - Full Frame	Agree	Attractive, Beautiful, Comfortable, Durable, Elegant, Ergonomic, Fit to Hand, Good Quality, Light Weight, Practical, Trendy
12	Rectangle - Metal - Full Frame	Agree	Durable, Fit to Hand, Good Quality, Practical
13	Round - Metal - Full Frame	Strongly Agree	Affordable, Attractive, Comfortable
14	Round - Metal - Full Frame	Agree	Aesthetic, Beautiful, Durable, Elegant, Ergonomic, Good Quality, Light Weight, Modern, Practical, Trendy
15	Pilot - Metal - Full Frame	Strongly Agree	Attractive, Comfortable
16	Pilot - Metal - Full Frame	Agree	Beautiful, Durable, Elegant, Ergonomic, Good Quality, Light Weight, Practical, Trendy
17	Titanium - Full Frame - Medium Color	Strongly Agree	Comfortable
18	Titanium - Full Frame - Medium Color	Agree	Durable, Ergonomic, Good Quality, Practical
19	Titanium - Full Frame - Dark Color	Agree	Comfortable, Ergonomic, Fit to Hand, Good Quality, Practical, Strong
20	Cat Eye - Titanium - Full Frame - Bright Color	Strongly Agree	Comfortable
21	Cat Eye - Titanium - Full Frame - Bright Color	Agree	Durable, Ergonomic, Good Quality, Practical
22	Oval - Titanium - Full Frame - Bright Color	Strongly Agree	Comfortable
23	Oval - Titanium - Full Frame - Bright Color	Agree	Durable, Ergonomic, Good Quality, Practical
24	Rectangle - Titanium - Full Frame - Bright Color	Strongly Agree	Comfortable
25	Rectangle - Titanium - Full Frame - Bright Color	Agree	Aesthetic, Durable, Ergonomic, Good Quality, Practical

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26	Round - Titanium - Full Frame - Bright Color	Strongly Agree	Modern
27	Round - Titanium - Full Frame - Bright Color	Agree	Affordable, Attractive, Beautiful, Casual, Comfortable, Elegant, Ergonomic, Fit to Hand, Good Quality, Light Weight, Practical, Trendy
28	Pilot - Titanium - Full Frame - Bright Color	Agree	Durable, Ergonomic, Fit to Hand, Good Quality, Practical
29	Stainless - Full Frame	Agree	Attractive, Beautiful, Comfortable, Durable, Ergonomic, Fit to Hand, Good Quality, Practical, Strong, Trendy
30	Cat Eye - Titanium - Full Frame	Strongly Agree	Attractive
31	Cat Eye - Titanium - Full Frame	Agree	Beautiful, Elegant, Light Weight, Trendy
32	Oval - Titanium - Full Frame	Strongly Agree	Attractive
33	Oval - Titanium - Full Frame	Agree	Beautiful, Elegant, Light Weight, Trendy
34	Rectangle - Titanium - Full Frame	Strongly Agree	Attractive
35	Rectangle - Titanium - Full Frame	Agree	Aesthetic, Beautiful, Elegant, Light Weight, Trendy
36	Pilot - Titanium - Full Frame	Strongly Agree	Beautiful, Elegant
37	Pilot - Titanium - Full Frame	Agree	Attractive, Light Weight, Trendy
38	Round - Titanium - Full Frame - Medium Color	Strongly Agree	Affordable, Attractive
39	Round - Titanium - Full Frame - Medium Color	Agree	Aesthetic, Beautiful, Elegant, Light Weight, Modern, Trendy
40	Round - Titanium - Full Frame - Dark Color	Strongly Agree	Modern, Trendy
41	Round - Titanium - Full Frame - Dark Color	Agree	Aesthetic, Affordable, Attractive, Beautiful, Casual, Elegant, Light Weight
42	Rectangle - Stainless - Full Frame	Agree	Aesthetic
43	Round - Stainless - Full Frame	Agree	Aesthetic, Modern
44	Pilot - Full Frame	Strongly Agree	Modern
45	Pilot - Full Frame	Agree	Aesthetic, Affordable, Casual
46	Oval - Full Frame	Agree	Aesthetic, Affordable, Casual, Modern
47	Cat Eye - Full Frame	Agree	Affordable, Casual
48	Rectangle - Full Frame - Medium Color	Strongly Agree	Affordable
49	Rectangle - Full Frame - Medium Color	Agree	Modern
50	Rectangle - Full Frame - Dark Color	Agree	Affordable

Table 6. Association rules

No	Rules	Support	Confidence	Kansei Word
1	Material =Titanium Aesthetic =Agree 134 ==> Surfaces =Plain 134	0,134	1	Aesthetic
2	Color =Bright Aesthetic =Agree 115 ==> Surfaces =Plain 115	0,115	1	Aesthetic
3	Material =Titanium Aesthetic =StronglyAgree 110 ==> Surfaces =Plain 110	0,11	1	Aesthetic
4	Color =Medium Affordable =Agree 100 ==> Surfaces =Gradient 100	0,1	1	Affordable
5	Material =Titanium Attractive =Agree 140 ==> Surfaces =Plain 140	0,14	1	Attractive
6	Color =Bright Attractive =Agree 106 ==> Surfaces =Plain 106	0,106	1	Attractive
7	Frame =Round Surfaces =Plain Attractive =Agree 102 ==> Material =Titanium 102	0,102	1	Attractive
8	Frame =Round Material =Titanium Attractive =Agree 102 ==> Surfaces =Plain 102	0,102	1	Attractive
9	Material =Titanium Beautiful=Agree 125 ==> Surfaces =Plain 125	0,125	1	Beautiful
10	Material =Titanium Beautiful=StronglyAgree 104 ==> Surfaces =Plain 104	0,104	1	Beautiful
11	Color =Medium Casual =Agree 103 ==> Surfaces =Gradient 103	0,103	1	Casual
12	Material =Titanium Casual =Agree 101 ==> Surfaces =Plain 101	0,101	1	Casual
13	Material =Titanium Comfortable =Agree 139 ==> Surfaces =Plain 139	0,139	1	Comfortable
14	Color =Medium Comfortable =Agree 115 ==> Surfaces =Gradient 115	0,115	1	Comfortable
15	Frame =Round Surfaces =Plain Comfortable =Agree 107 ==> Material =Titanium 107	0,107	1	Comfortable
16	Frame =Round Material =Titanium Comfortable =Agree 107 ==> Surfaces =Plain 107	0,107	1	Comfortable
17	Color =Medium Durable =Agree 119 ==> Surfaces =Gradient 119	0,119	1	Durable
18	Material =Titanium Elegant =Agree 122 ==> Surfaces =Plain 122	0,122	1	Elegant
19	Material =Titanium Elegant =StronglyAgree 111 ==> Surfaces =Plain 111	0,111	1	Elegant
20	Color =Bright Elegant =Agree 102 ==> Surfaces =Plain 102	0,102	1	Elegant
21	Color =Medium Elegant =Disagree 101 ==> Surfaces =Gradient 101	0,101	1	Elegant
22	Material =Titanium Ergonomic=Agree 118 ==> Surfaces =Plain 118	0,118	1	Ergonomic
23	Color =Medium Ergonomic=Agree 115 ==> Surfaces =Gradient 115	0,115	1	Ergonomic
24	Color =Medium Fit to Hand=Agree 114 ==> Surfaces =Gradient 114	0,114	1	Fit to Hand
25	Material =Titanium Fit to Hand=Agree 104 ==> Surfaces =Plain 104	0,104	1	Fit to Hand
26	Color =Bright Good Quality =Agree 139 ==> Surfaces =Plain 139	0,139	1	Good Quality
27	Material =Titanium Good Quality =Agree 138 ==> Surfaces =Plain 138	0,138	1	Good Quality
28	Color =Medium Good Quality =Agree 119 ==> Surfaces =Gradient 119	0,119	1	Good Quality
29	Material =Titanium Light Weight =Agree 108 ==> Surfaces =Plain 108	0,108	1	Light Weight
30	Material =Titanium Modern =StronglyAgree 124 ==> Surfaces =Plain 124	0,124	1	Modern
31	Material =Titanium Pratical =Agree 139 ==> Surfaces =Plain 139	0,139	1	Practical
32	Color =Bright Pratical =Agree 122 ==> Surfaces =Plain 122	0,122	1	Practical
33	Color =Medium Pratical =Agree 116 ==> Surfaces =Gradient 116	0,116	1	Practical
34	Color =Medium Strong=Agree 114 ==> Surfaces =Gradient 114	0,114	1	Strong
35	Material =Titanium Trendy =StronglyAgree 136 ==> Surfaces =Plain 136	0,136	1	Trendy

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