Analysis of Attributes that Become Consumer Preferences in Choosing Indonature Table Furniture Products

Fajar Haditiya Atmaja

Indonature
fajarhaditiya@gmail.com
https://doi.org/10.37715/rmbe.v1i2.2433

Abstract—**Ud. Indonature is a company engaged in furniture, especially coffee table located on the island of Lombok, West Nusa Tenggara. Furniture made of solid wood such as Teak and Trembesi wood. In recent years there has been a decrease in the company's turnover therefore it takes product innovation to increase sales. With the need to develop coffee table furniture products more clearly, researchers decided to conduct research on Attribute Analysis that Becomes Consumer Preferences in Choosing Indonature Table Furniture Products. This study aims to find out and analyze the combination of attributes that become consumer preferences in purchasing Indonature coffee table products and to know and analyze the most important coffee table attributes for Indonature consumers. The problem formulation in this study is, firstly, what combination of attributes are the consumer preference in buying coffee table into nature products and the second is what are the most important attributes of coffee table products for indonature consumers. The results of conjoin analysis showed that the most preferred and most important combination according to consumers is made of trembesi wood material with arch form, has a natural wood finishing and rustic design.**

Keywords— *Coffee Table, Design, Finishing, Form, Furniture Products, Material*

1. Introduction

The rapid and very good development of the human development index in Mataram City every year makes a good business opportunity for some residents in Mataram City. One of them is a business opportunity in the furniture sector. Furniture has become a very important need for the community. Everyone needs furniture to fill their residential homes so that business competition in the furniture sector is very high. However, all companies must be able to survive and compete and must be able to develop a bigger business.

Indonature is a company that produces furniture made from solid wood such as trembesi and teak. Indonature really prioritizes good quality. Most of the products produced by Indonature are aimed directly at customers with a Business to Customer (B2C) business model. In 2014, the turnover achieved by Indonature was Rp.56,000,000, which was higher than the set target of Rp.40,000,000. Then, in 2015 Indonature's turnover again increased to Rp64,000,000 and exceeded the set target of Rp60,000,000. In 2016 and 2017, Indonature experienced an increase in turnover of Rp. 92,000,000 and Rp. 120,000,000, respectively, and still exceeded the set target. However, in 2018 the turnover obtained by Indonature has decreased and is far below the target of Rp. 80,000,000 with a target that should have been achieved of Rp. 130,000,000. In 2019 there was another decline, the turnover obtained by the company was Rp. 116,000,000 with the company's target of Rp. 140,000,000. This decrease in the amount of turnover obtained is a problem faced by Indonature.
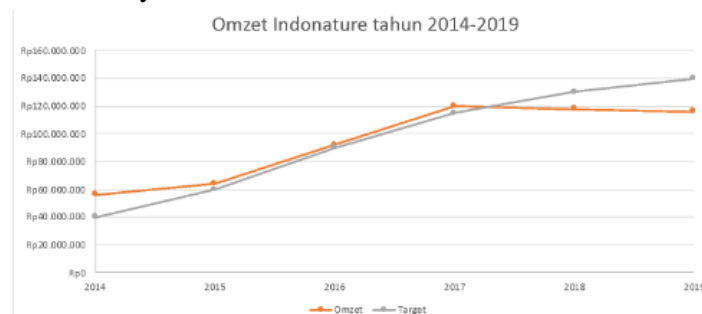
Figure 1.1. Indonature Turnover Comparison with Competitors

The decline in company turnover can be caused by various factors such as product quality, the number of similar goods to the lack of design variations on the product. Consumers make purchases on a product not based only on one appropriate attribute but there are several other attributes that underlie consumers to choose the product, this is supported by Chowdury and Akter (2018) that when making a purchase or choosing a product or service there are several attribute factors that form the basis of consumer decisions in choosing the product or service. There are nine attributes, namely: price, quality, design, material, country of origin, warranty, color, brand, and safety. Attributes were selected based on previous research that became the reference for this research. Kaputa et al. (2018) mention the attributes of price, quality, design, environmental attributes, country of origin, warranty, color, brand, and safety. The company wishes to continue to develop companies in the furniture sector, especially tables, it is necessary to conduct further research on consumer preferences related to furniture products, especially in Lombok.

2. Literature Review
2.1. Previous Research

First research by Ozanne et al. (2001) with the title "A Conjoint Analysis of New Zealand Consumer Preference for Environmentally Certified Forest Products". The aim of the study was to examine the relative importance of New Zealand consumers in environmental certification compared to wood attributes using the conjoint method. The results of the conjoint analysis show that environmental certification is only one of a number of important attributes. Other important attributes include Country of origin, where native sources from New Zealand are more in demand by consumers, forest types with plantation systems are preferred over natural forests.

The second study was by Kaputa et al. (2018) with the title "Consumer Preferences for Wooden Furniture in Croatia and Slovakia". This study aims to increase knowledge about differences in customer preferences for furniture materials, attributes, and styles when buying furniture in Slovakia and Croatia. The findings show that Slovak and Croatian respondents differ in their preferences for furniture materials, as well as the factors that influence their purchasing decisions when purchasing interior and exterior furniture as a whole. However, they both have in common that wood-based furniture is preferred over similar substitutes.

The third study by Kaputa and Šupín (2010) with the title "Consumer Preferences for Furniture". This study discusses consumer preferences for furniture in the Slovak Republic. The most relevant purchasing decision factors are the quality, price, and design of the furniture. His preferred attribute is furniture in a modern style. The decision to buy a particular piece of furniture appears most often in stores followed by catalogs.

The fourth study by Xiaolei et al. (2014) with the title "Customer Preferences for Kitchen Cabinets in China Using Conjoint Analysis". This study focuses on what attributes are very consumer preferences in buying products and the results are that in general, consumers always prioritize quality and price in choosing kitchen cabinet products.

2.2. Theoretical basis
2.2.1. Consumer preferences

Consumer preferences will make it easier to rank and sort a product or service in accordance with what consumers want (Frank, 2015). Consumer preferences, every need and desire of consumers can be ranked and able to compare with every existing offer (Besakon & Braeutigam, 2014). Consumer preferences are also a way for companies to achieve high sales and profits (Kotler & Keller, 2016, p. 38). So it can be concluded that knowledge of consumer preferences is very important, it is able to help companies in determining consumer wants and needs.

This study assumes that every consumer has three basic assumptions. Preferences are complete and transitive, and more is better. Determination of product selection decisions by consumers will pass through six stages called the hierarchy of effects model. Preferences are also present in this stage, namely in the fourth stage. At the preference stage of a consumer's purchase decision, there are several factors that influence the decision-making stage, including: cultural factors, social factors, personal factors, and psychological factors..

2.2.2. Product

According to Kotler et al. (2014) a product is all goods or services that can be offered to the consumer market for attention, can be purchased and used, or consumed to meet market satisfaction and needs. Armstrong

(2012, as cited in Nursari et al., 2017) a thing can be said to be a product if it has a series of attributes that are characteristics or elements that are considered important by consumers in viewing a product.

2.2.3. *Furniture*

Furniture comes from the word fournir which means furnish or household furniture. In other words, furniture is all things that are and are used in the house, be it room furniture, small objects, or accessories (Haryanto, 2004). Furniture is a household item or product that includes all items such as chairs, tables, cabinets, and other household furniture.
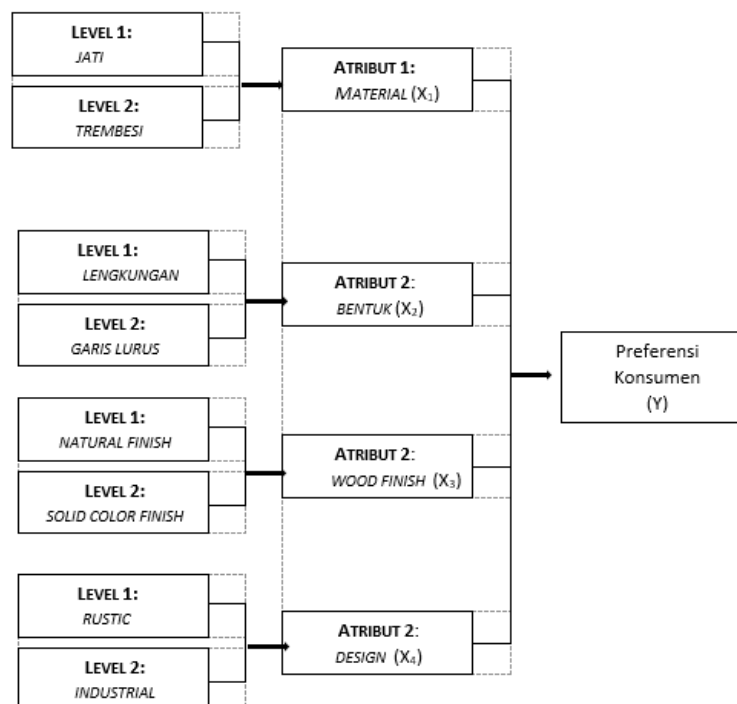
3. Research Methods
3.1. Analysis Model

Figure 3.1. Analysis Model
Source: **Processed Data**

3.2. Research Approach

This study uses quantitative methods. Quantitative research method is a research method used to examine a particular population or sample through data collection using research instruments and questionnaire data collection techniques. The research location chosen in this study is located in the city of Lombok. The selection of this research location is based on the consideration of the production location of Indonature products. The population in this study were people who had bought furniture products. Because the population is unknown, this study uses an infinite population (unknown) because the population is infinite. The sampling method used in this research is the saturated sample method. The saturated sample method is a sampling technique when all members of the population are used as samples. The number of samples used in this study amounted to 27 people. The sampling technique used in this research is non-probability sampling. Non-probability sampling is a technique used in sampling that does not provide equal opportunities or opportunities for each part of the population. In this study, using purposive sampling. Purposive sampling is a random sampling technique with certain considerations and certain criteria that have been determined by the researcher.

Data collection in this study used two sources, namely primary data and secondary data. The primary data in this study were obtained through the processed results of the questionnaire analysis that had been filled out by the respondents. Meanwhile, for secondary data to support this research through literature studies from previous studies, books, journals, and other references that support this research.

3.3. Data analysis method

The data analysis method used in this research is conjoint analysis. Conjoint analysis is a multivariate data processing technique that was developed specifically to understand how respondents can develop preferences for all types of objects. The premise of this analysis is that consumers evaluate the value of an object (either real or hypothetical) by combining a number of separate values that have been provided for each attribute. Consumers can express their preferences through the assessment of objects that have been formed by the combination of attributes.

The purpose of this conjoint analysis is to determine consumer perceptions of a product or service consisting of various attributes as preferences. The main analysis results in this research is the shape of the product that will be chosen by consumers. Conjoint analysis has the following model:

$$Y_1 = X_1 + X_2 + \ldots + X_n \qquad (1)$$

Explanation:
   A. The independent variable (X_1 and so on) is a factor in the form of non-metric data including part of the factor, namely level.
   B. The dependent variable (Y_1) is the overall opinion of the respondents on the various factors and levels embedded in a product. This dependent variable includes the level of importance of a respondent's factors on product attributes.

According to Supranto (2010, p. 205) in the conjoint analysis, the variables are not usually preferences or intentions to buy (preferences/intentions to buy). In other words, the respondent gives a rating or ranking which is expressed in preference or intention to buy. There are five steps in the conjoint analysis according to Ghozali (2011) namely:
   1. Formulation of the problem.
   2. Stimulus formation.
   3. Data entry.
   4. Perform conjoint analysis.

$$m \, ki \, \mu(x) = \sum . \sum . aijxij \qquad (2)$$

   $i=1 \; j=1$

   Description:
      a. (x) = all utility of an alternative
      b. ai = utility associated with level j
      c. i,j = 1, 2, ... ki from attribute i (i,j = 1, 2, ...,m)
      d. m = Number of attributes
      e. xi = 1, if the jth level of attribute 1 occurs 0
      f. ki = Number of categories on attribute i

To determine the importance of the i-th attribute (Wi), it is determined by the following equation:
      :

$$U(X) = (li)x100\% \sum \quad mi = 1li \qquad (3)$$

   li = {max (ai) – min (ai)}, for each i
   5. Interpretation of results.
      A. Utility
      B. Important values
      C. Pearson's and Kendall's Tau

4. Result and Discussion

4.1. Overview of Research Objects

Indonature is a specialty furniture business for coffee tables that prioritizes quality at affordable prices. Indonature products are intended for everyone who likes solid wood-based products, namely teak, and trembesi wood. The company's decision to develop furniture products, especially coffee tables, is based on the company's limitations in terms of costs for producing variations of coffee tables. On the other hand, the company wants to continue to develop the potential of this furniture business. Thus the company wants to create and produce new products according to consumer preferences.

4.2. Results of data analysis

There are criteria that must be met by respondents as follows:

1. Respondents are residents of the city of Lombok
2. The respondent is a person aged 25-55 years who works as a cafe, restaurant, hotel, and individual/private user by profession.
3. Respondents have purchased furniture products more than once.

Descriptive statistical analysis was used to describe the characteristics of the respondents used in this study. Characteristics of respondents indicate that the majority of respondents have a male gender that is equal to 94% female 26%. The respondent's age category shows that the respondent's age is around 26 to 35 years, which is 15%. Then respondents aged 36 to 45 years showed a percentage of 48% and 37% were respondents aged 46 to 55 years. The job categories are mostly business people, namely 40%, employees 30%, and housewives have a percentage of 26%. Respondents in the category who have bought or used Indonature table furniture are 86% more than those who have never bought but have an interest in using Indonature table furniture with a value of 14%. The results of the questionnaire show that 55% of those who have bought 2 times table furniture products at Indonature, have bought 3 times the product by 30% and those who have bought 4 times or more are 15%. The use of teak wood material is more in demand by respondents with a value of 59% while the use of trembesi wood material only gets a value of 41%. Teak wood is in great demand by consumers because teak wood has several characteristics such as the wood is very strong because it is a type of hardwood from first-class trees and is not easy to shrink or expand. The category of variations in shapes that respondents are interested in is the curved shape with a value of 56% compared to the straight line with a value of 44%. The wood finish category that respondents are interested in is natural finish with a value of 52% compared to solid color finish with a value of 48%. the design category that the respondents are interested in is rustic design with a percentage of 59% compared to industrial design with a percentage of 41%.

4.2.1. Conjoint Analysis

In this study, conjoint analysis is used to determine the combination of product and service quality that is most in demand by Indonature Table Furniture customers.

Table 4.1. Attributes and Levels Used in Research

No	Attribute	Level	Description
1	Material: Material is a component that is the main ingredient in the manufacture of furniture or furniture.	1	Teak: a type of tree that produces high quality wood. Teak has a large tree, straight trunk, and can grow to a height of 30-40 m.
		2	Trembesi: Trembesi trees are often also called rain trees or rain ki. Trembesi is also one of the best choices in making furniture
2	Form: Form is generated based on the way of thinking, material, function, and technical considerations.	1	Arch: a curved shape that bends in two or more directions.
		2	Straight line: forming a straight line, or marked with a straight line
3	Wood Finishing: Finishing on wood has the following functions: the first one is for help the wood to stay clean, second to stabilize wood and yang third is to increase wood resistance.	1	Natural finish: the main transparent coating material used to give a natural wood finish, which enhances the natural beauty of the wood.
		2	Solid Color Finish: an opaque finish that comes from a variety of colors and is made with a much higher concentration of pigment which results in a semi-transparent translucent dye
4	Design: (communication) product design must be able to reflect the values and	1	Rustic: a design that emphasizes the impression of old or rusty in the type of furniture made.

philosophy of the company or brand as a visualization to communicate the company's vision and mission to consumers.	2	Industrial: furniture that tends to be without finishing and shows its original color. The finishing that is usually used is clear although sometimes there are those who use solid colors.

After determining the attributes and levels used, the next step is to arrange a combination of stimuli from the attributes and levels used in the study. The combinations formed are 16 combinations where this combination is obtained from the result of multiplying the number of the fourth level of attributes 2 x 2 x 2 x 2 = 16 stimuli. Of the 16 combinations of stimuli, the respondent will give a ranking scale from a value of 1 to a value of 16. The rating ranking scale used in this study starts from the combination most favored by the respondent and is given a value of 1 followed by the number 2 and so on until the number 16 which indicates the last combination or can mean less attractive to respondents.

Table 4.2. Description of Conjoint Analysis Model Model Description

	N of Levels	Relation to Ranks or Scores
Material	2	Discrete
Shape	2	Discrete
Wood Finish	2	Discrete
Design	2	Discrete

All factors are orthogonal.

Source: **SPSS 26**

The table above shows that the number in the "N Level" column is the number of levels for each attribute.

a. Overall Conjoint Analysis Results
    1. Overall Respondent Utility Value

The estimated utility value is processed using the SPSS 20 program, as shown below:

Table 4.3. Conjoint Analysis Results Overall Utilities

		Utility Estimate	Std. Error
Material	Jati	-2.375	1.360
	Trembesi	2.375	1.360
Bentuk	Lengkungan	1.375	1.360
	Garis Lurus	-1.375	1.360
Woad Finish	Natural Finish	.375	1.360
	Solid Color Finish	-.375	1.360
Design	Rustic	1.875	1.360
	Industrial	-1.875	1.360
(Constant)		11.625	1.360

Source: **SPSS 26**

In material attributes, it can be seen that respondents prefer Trembesi (2.375) than Teak (-2.375). Next is the shape attribute, it can be seen that the respondents prefer the curved shape (1.375) than the straight line (-1.375). In the third attribute, namely Wood Finish, respondents prefer natural finish (0.375) than solid color finish (-0.375). In the last attribute, namely design, respondents prefer rustic (1.875) designs to industrial (-1.875).

    2. Overall Importance of Respondents

The following is the overall importance value of the respondents:

Table 4.4. Overall Result Value of Interest (Importance) Respondents

Importance Values

Material	26.272
Bentuk	17.201
Wood Finish	29.807
Design	26.719

Source: **SPSS 26**

The Wood Finish attribute has a higher importance value than the value of importance and other attributes, which is 29.807%. The second most important attribute is Design at 26,719%. The third attribute

that is considered important is the Material attribute with an importance value of 26.272%. The last attribute that has the lowest value is the Form attribute where the importance value is 17.201%.

The next stage in the conjoint analysis is to conduct an analysis to find out which combinations of stimuli are most preferred or considered important by respondents in making purchases or using table furniture products. Here is the total utility of each combination of stimuli as follows:

Table 5.5. Combination Value

No.	Combination				Utility Value				Total	Ranking
1	Teak	Arch	Natural Finish	Rustic	-1,207	0,659	0,149	1,332	0,933	5
2	Teak	Arch	Natural Finish	Industrial	-1,207	0,659	0,149	-1,332	-1,731	13
3	Teak	Arch	Solid Color Finish	Rustic	-1,207	0,659	-0,149	1,332	0,635	7
4	Teak	Arch	Solid Color Finish	Industrial	-1,207	0,659	-0,149	-1,332	-2,029	14
5	Teak	Straight line	Natural Finish	Rustic	-1,207	-0,659	0,149	1,332	-0,385	9
6	Teak	Straight line	Natural Finish	Industrial	-1,207	-0,659	0,149	-1,332	-3,049	15
7	Teak	Straight line	Solid Color Finish	Rustic	-1,207	-0,659	-0,149	1,332	-0,683	11
8	Teak	Straight line	Solid Color Finish	Industrial	-1,207	-0,659	-0,149	-1,332	-3,347	16
9	Trembesi	Arch	Natural Finish	Rustic	1,207	0,659	0,149	1,332	3,347	1
10	Trembesi	Arch	Natural Finish	Industrial	1,207	0,659	0,149	-1,332	0,683	6
11	Trembesi	Arch	Solid Color Finish	Rustic	1,207	0,659	-0,149	1,332	3,049	2
12	Trembesi	Arch	Solid Color Finish	Industrial	1,207	0,659	-0,149	-1,332	0,385	8
13	Trembesi	Straight line	Natural Finish	Rustic	1,207	-0,659	0,149	1,332	2,029	3
14	Trembesi	Straight line	Natural Finish	Industrial	1,207	-0,659	0,149	-1,332	-0,635	10
15	Trembesi	Straight line	Solid Color Finish	Rustic	1,207	-0,659	-0,149	1,332	1,731	4
16	Trembesi	Straight line	Solid Color Finish	Industrial	1,207	-0,659	-0,149	-1,332	-0,933	12

Source: **Researchers (2020)**

In Table 4.4. shows that the combination of stimuli most favored by customers is the 9th combination of stimuli, namely with trembesi + arch + natural finish and uses a rustic design with a value of 3.347. Then the second most preferred combination by customers is the 11th combination of stimuli, namely with trembesi + arch + solid color finish and uses a rustic design with a total stimulus combination value of 3,049. The combination that ranks third is the combination that is located in the 13th combination of stimuli, namely using trembesi + straight line + natural finish and using a rustic design with a total combination value of 2,029.

3. Overall Prediction Accuracy

The last step in the conjoint analysis is to determine the result between the estimated value and the actual value used in the study. One way that can be used to calculate the reaction rate is using Pearson's R and Kendall tau analysis.

Table 4.6. Pearson's R and Kendall's Tau Test All Respondents

Correlations[a]

	Value	Sig.
Pearson's R	.738	.018
Kendall's tau	.500	.042

a. Correlations between observed and estimated preferences

Source: **SPSS 26**

Table 4.6. states that the value of sig. are 0.018 and 0.042 (less than 0.05). That is, there is a strong correlation between the estimate and the actual condition of the respondent as a whole. So it can be concluded that the model is able to predict respondents' preferences as a whole well.

5. Conclusions and Practical Implication

5.1. Conclusion

Based on the results of the research that has been done, it is concluded that the combination of products that are most preferred and considered important by consumers or respondents is a natural finish with a rustic design and then uses trembesi wood material and is in the form of an arch. Of the 4 attributes used in this research, namely material, shape, wood finish, and design. The most important attribute is the natural finish attribute. Then, use a rustic design. Third, use trembesi wood. Fourth, use the arch form.

5.2. Practical Implication

Table 5.1. Managerial Implications

NO	Research result	Suggestions and Implications
1	The most preferred combination of stimuli is trembesi, arch, natural finish, and rustic	Providing table furniture with a natural finish and rustic design
2	The arch is more favored by customers because it is more beautiful, relaxed, dynamic, and attractive	Proving that using arches can also look minimalist and simple
3	The existence of product innovations (new combinations) can be useful and help consumers because there are more varied table furniture innovations	Enlarging the production scale and sales scale even more starting from the local, national, and international scale periodically
4	There are three target market categories, namely business people, employees, and housewives	Conduct further research on the contribution of employees and housewives to develop the number and types of other products in order to get the benefits and innovations of other table furniture products
5	Teak is in demand but becomes the last preference	Doing further research to find out whether it is true that teak is still in great demand or the current trend is indeed true that teak is starting to be replaced

6. References

Besakon, D. A., & Braeutigam, R. R. (2014). *Microeconomics* (5th ed.). New Jersey: John Wiley & Sons, Inc.

Chowdhury, T. A., & Akter, T. (2018). Fashion attributes preferred by young Bangladeshi consumers while buying casual clothes. *Journal of Fashion Marketing and Management: An International Journal*, *22*(4), 540–556. https://doi.org/10.1108/JFMM-02-2018-0018

Frank, R. H. (2015). *Microeconomics and behavior* (9th ed.). New York: McGraw-Hill.

Ghozali, I. (2011). *Aplikasi analisis multivariate dengan program IBM SPSS 19*. Semarang: Badan Penerbit Universitas Diponegoro.

Haryanto, E. (2004). *Ragam hias kursi kayu tunggal Jawa Tengah abad ke 17-20*. Institut Teknologi Bandung.

Kaputa, V., Barčić, A. P., Mat'ová, H., & Motik, D. (2018). Consumer preferences for wooden furniture in Croatia and Slovakia. *BioResources*, *13*(3), 6280–6299.

Kaputa, V., & Šupín, M. (2010). Consumer preferences for furniture. *Wood Processing and Furniture*

Manufacturing: Present Conditions, Opportunities and New Challenges, 81–89.

Kotler, P., Armstrong, G., Wong, W., & Saunders, J. (2014). *Principles of marketing. England*. America: Kendalvile.

Kotler, P., & Keller, K. L. (2016). *Marketing management* (5th ed.). New Jersey : Pearson Education South Asia PTe Ltd.

Nursari, M., Diamonalisa, D., & Sukarmanto, E. (2017). Pengaruh profitabilitas, leverage, dan kepemilikan institusional terhadap tax avoidance (Studi empiris pada perusahaan kimia yang terdaftar di Bursa Efek Indonesia (BEI) pada periode tahun 2009-2016). *Seminar Penelitan Sivitas Akademia Unisba Peran Unisba: Pemanfaatan Hasil Penelitian Untuk Pengembangan Dan Penyebarluasan IPTEK Dan Imtak Yang Berkelanjutan Di Jawa Barat*, *3*(2), 259–266. https://doi.org/dx.doi.org/10.29313/.v0i0.8397

Ozanne, L., Bigsby, H., & Gan, C. (2001). A conjoint analysis of New Zealand consumer preference for environmentally certified forest products. *Sustainable Production of Forest Products 2000*, 7–15.

Supranto, J. (2010). *Analisis multivariate, arti dan interpretasi*. Jakarta : PT Rineka Cipta.

Xiaolei, C., Jun, S., & Bing, L. (2014). Customer preferences for kitchen cabinets in China using conjoint analysis. *Journal of Chemical and Pharmaceutical Research*, *6*(2), 14–22.