

PAPER • OPEN ACCESS

The Analysis of Consumer Perception on Quality of Soybean Milk Used Importance Performance Analysis Method

To cite this article: MF Kurnianto *et al* 2020 *IOP Conf. Ser.: Earth Environ. Sci.* **411** 012051

View the [article online](#) for updates and enhancements.

Recent citations

- [The effect of ozonation time and contact time of edamame washing on color changes using the continuous type ozone washing method](#)
S O N Yudiastuti *et al*

The Analysis of Consumer Perception on Quality of Soybean Milk Used Importance Performance Analysis Method

MF Kurnianto¹, M J Wibowo², B Hariono¹, R Wijaya¹, A Brilliantina^{1*}

¹ Department of Agriculture Technology, Politeknik Negeri Jember, Indonesia

² Departmen of Engineering, Politeknik Negeri Jember, Indonesia

* aulia_b@polije.ac.id

Abstract. Consumer perception on food quality is a key performance indicator for success in food industri development. Many factors influence consumer perception on food quality. The purpose of this study was to identify the attributes of food product and evaluate it's performance to find out attributes based on consumer perception. This study uses marketing mix 4P namely Product (product), Price (prices), Place (where / location), Promotion (promotion). The respondent in this research was the consumer that bought and consumed soybean milk in Jember. The sampling technique used accidental sampling with a number of sample is 75 people, based on linier time function. The analysis of data used Importance–Performance Analysis. The result of this research showed that taste of product, flavour of product, and expired date of the product, and the price of product were the key atributes of soybean milk quality.

1. Introduction

The most basic for human necessity is food. Food can be interpreted as anything that comes from biological sources and water, both treated and untreated [1]. Soybean is one of the foods that have a variety of high nutritional content, therefore soybean and its products are highly recommended for consumption by the community. One of the nutritional contents of soy is protein.

Soy milk is one of the processed foods from soybean which lately has been widely known as an alternative to replace cow's milk. Soy milk is very important for children since the protein inside is highly needed for their growth. The composition of nutritional content of soy milk is slightly different from cow's milk. Comparison between soy milk and cow's milk composition per 100 grams can be seen in Table 1.

One reason for purchasing soy milk is an attribute of product quality. Producers have to provide quality soy milk to encourage consumers in buying soy milk. Quality product according to [2] is a product that is able to give more than expected results. Product are important instrument for achieving success and prosperity in modern companies [3].

One of the strategies to analyze the attributes that can be presented by soy milk is the marketing mix (4P) strategy which includes product, price, place, and promotion. Through this marketing mix (4P) strategy, it would be known what attributes influence the consumer's desire to buy soy milk. Furthermore, to show the attributes of products / services that need to be improved or reduced to maintain customer satisfaction, the Importance Performance Analysis (IPA) method is used because it has several advantages compared to other methods. These advantages include the easiness



interpretation of its results, the scale is relatively easy to understand, and requires low costs. According to [5], the Importance Performance Analysis (IPA) method is an easy application technique to manage the attributes of the level of importance and the level of implementation itself which is useful for the development of marketing program's effectiveness.

Table 1. Composition of soy milk and cow's milk per 100 grams

Composition	Soy milk	Cow's milk
Water (%)	88.60	88.60
Calories (kcal)	52.99	58.00
Protein (%)	4.40	2.90
Carbohydrates (%)	3.80	4.50
Fat (%)	2.50	0.30
Vitamin B1 (%)	0.04	0.04
Vitamin B2 (%)	0.02	.15
Vitamin A (%)	0.02	.20
Calcium (mg)	15	100
Phosphorus (mg)	49	90
Sodium (mg)	2	16
Iron (mg)	1,2	0.1
Saturated fatty acids (%)	40 to 48	60 to 70
Unsaturated fatty acids (%)	52 to 60	30 to 40
Cholesterol (mg)	0	9.24 to 9.99
Ash (gram)	0.5	0.7

Source: [4]

Besides the IPA method, another method that can support the improvement of attributes is the Customer Satisfaction Index (CSI) method to determine the level of customer satisfaction. This method has several advantages including efficiency (not only the satisfaction index but also obtaining information related to dimensions / attributes that need to be improved), easy to use as well as simple, and using a scale that has a high sensitivity and reliability. According to [6], customer satisfaction is determined by customer perceptions of product or service performance in fulfilling customer expectations. Customers will be satisfied if their expectations are completed or will be very satisfied if their expectations are exceeded.

2. Method

The methodology in this study includes the following stages:

1. Identify the problem

This stage covers the the researcher process of describing the background of the research and formulating the problems to be studied. In describing the background of the research the researcher explains the reasons why this research is carried out based on the problems occur in the object of research and the purpose of this study.

2. Literature Review

This stage covers the process of researcher using theories, concept, literature sourced from books or journals used to support research.

3. Determine and arrange the instrument

This stage includes the process of making a questionnaire, where the questions in the questionnaire toward this study are made based on indicators that exist in operational variables. Questions are used to measure perceptions of performance and customer expectations for the marketing mix. In this questionnaire, the Likert scale as a scale used in research with 5 alternative answers is determined. To

determine the number of samples, Slovin Formula is used to specify the number of samples in this study. The sample used is 75 respondents with non-probabilistic sampling technique.

4. Validity and Reliability Test

[7] states that the validity test is used as measurement that indicates the level of validity or validity of an instrument. Validity test is done by correlating each item in a variable with a total score using the product moment correlation technique. The correlation coefficient is said to be valid if the probability value $r_{count} \leq 0.05$ ($r \leq 0.05$).

[8] states that reliability is stability, consistency, predictability, and clarity or accuracy. Reliability is the extent to which the results of a measurement can be trusted. Testing the reliability of measuring instruments using the Cronbach Alpha technique. If the alpha coefficient ≥ 0.6 can be stated that the questionnaire instrument used is reliable [9].

5. Data collection

The way to collect the data in this study is by distributing questionnaires consisting of several questions. Spreading techniques is by manual. The questionnaire consisted of questions about the identity of the respondent as well as questions about identifying consumer satisfaction and measuring the level of expectation and the level of perception of each variable. The identification of variables and attributes are as follow in Table 2. The questionnaire distributed is an expectation (IPA). To illustrate the answers of respondents, it is used a scale of linked 1 to 5 with the lowest number size has a meaning of strongly disagree (STS) to the highest number that has a meaning of strongly agree (SS).

6. Data processing

Data analysis method used in this study is Importance Performance Analysis. The steps in the Importance Performance Analysis method are as follows [10]:

- a. Determine the level of concordance between the level of importance and the level of soybean milk quality performance through comparison of performance scores with importance scores. The suitability formula used is [11]:

$$Tki = \frac{Xi}{Yi} \times 100\% \dots \dots \dots (1)$$

Information:

Tki = Compatibility level; Xi = Score of performance level; Yi = Score of importance level

Table 2. Variables and attributes of 4P soybean milk marketing mix

Dimension	Variable
Product	Soy milk taste Sweetness level of soy milk The smell of soy milk The thickness of soy milk Soy milk packaging design Permission availability Product information availability
Price	Price of soy milk
The place	Ease of getting soy milk
Promotion	Promotion of soy milk advertising Known brand

b. Calculate the average for each attribute perceived by consumers, using the formula:

$$XI = \sum XI / n \quad YI = \sum YI / n \dots\dots\dots (2)$$

Information:

XI = Average score of product level of performance Xi

YI = Average score of importance level for Yi products

n = Number of respondents n

c. Calculate the average of all attributes of importance (Y) and performance (X) as the limit in the Cartesian diagram, using the formula:

$$X = \sum XI / k \quad Y = \sum YI / k \dots\dots\dots (3)$$

Information:

X = average score of implementation level or product performance of all factors or attributes X

Y = average score of importance level of all attributes affected the quality of product Y

k = Number of attributes affected product quality k

d. Mapping into the Cartesian diagram as shown in Figure 1.

7. Analysis of data processing results and conclusions

This is the final stage where the author analyzes the results of the entire data processing that has been done then concludes the results of research study.

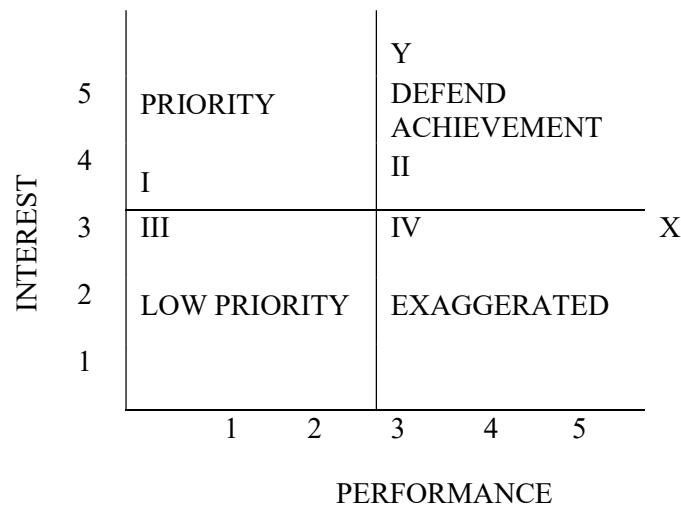


Figure 1. Cartesian Diagram

3. Results And Discussion

Based on the test results, it is known that the relationship between item scores and total scores has a probability of r count (p) ≤ 0.05 in which it can be concluded that the relationship is valid. The relationship between items in the variable can be known through Alpha Cronbach with a correlation coefficient that is above the reliability coefficient that has been set in 0.6 so that it can be concluded that the relationship is reliable.

Conformity Level

Conformity level is a comparison between the score of performance level and the importance level which will determine the order of priority in improving the performance of each attribute in the

product quality variable. Calculation of conformity level between the level of performance and level of importance can be seen in Table 3.

From the analysis results, it shows that the average of performance compared to the average of importance is greater (2.67 for performance <4.09 for importance), which means that there is still a gap between quality and expectation within the large average value of gap of 1.42. It can be interpreted that there is still far away of consumer expectation and still need improvement to achieve the expectation desired by consumer. To determine the priority of existing items, then a Cartesian Importance Performance Analysis (IPA) diagram is analyzed.

Table 3. Calculation of comformity level between the level of performance and level of importance

No	Product Attributes	Performance	Interest	GAP
Product				
1	Soy milk taste	2,89	4,12	1,23
2	Sweetness level of soy milk	2,9	4,13	1,23
3	The smell of soy milk	2,92	4,06	1,14
4	The thickness of soy milk	2,67	4,05	1,38
5	Soymilk packaging design	2,6	4,04	1,44
6	Permission availability	2,13	4,22	2,09
7	Product information availability	2,3	4,2	1,9
Price				
8	Soy milk price	3,1	4,08	0,98
Place				
9	Ease of getting soy milk	2,8	3,96	1,16
Promotion				
10	Soy milk advertisement promotion	2,6	4,13	1,53
11	Known brand	2,5	4,08	1,58
Average		2,67	4,09	1,42

Source: Result of data analysis (2019)

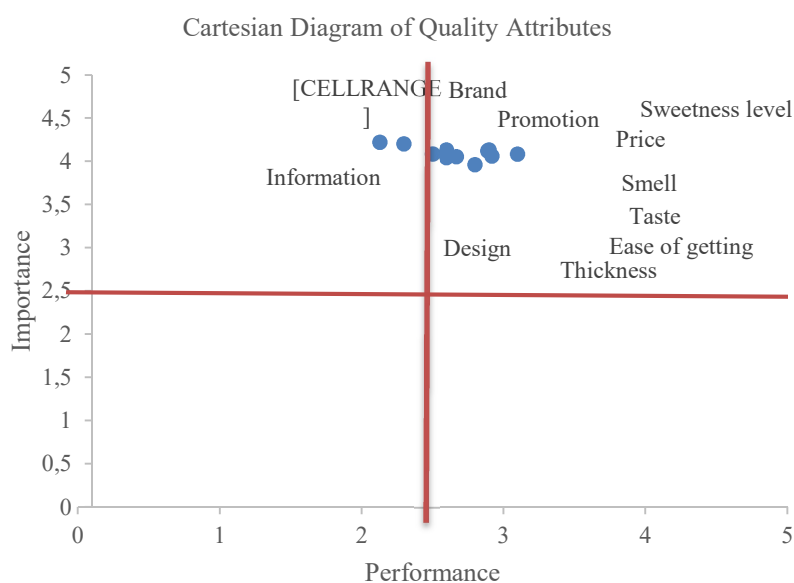


Figure 2. IPA Mapping of soy milk

Based on IPA mapping, it can be analyzed that the quality attributes of soy milk are in I and II consciousness with the following results [12]:

1. Quadrant I Priority (Concentrate Here)

Items included in Quadrant I are clear information related to the product, starting from the composition of the manufacturing date and expiration date, as well as other information such as how to store the product. In addition to product information, the inclusion of P-IRT on the package also greatly influences the consumer's desire to consume soy milk. Factors located in this quadrant are considered as Important and / or Expected Factors by consumers.

2. Maintain the performance (Keep up the good work) quadrant II

Items included in the quadrant II are product brands, promotions, packaging designs, the level of viscosity of soymilk products, ease of consumers in getting products, taste, sweetness and aroma of soy milk, as well as from items at affordable prices. Factors located in this quadrant are considered important and expected as a supporting factor for customer satisfaction so that management and these factors are very important to be maintained.

4. Conclusion

Based on the result, it can be concluded that the IPA method is able to be applied to determine consumer satisfaction with the quality of soy milk product. There are 2 main priority items and 9 items on the quality of soy milk product that need to be considered in order customer satisfaction and consumer loyalty to soybean milk products are increasingly high.

Acknowledgment

This paper is dedicated to Kemenristekdikti. This paper is part of the 2019 Higher Education grant community service.

References

- [1] Indriani Y. 2012. *Gizi dan Pangan*. Universitas Lampung. Bandar Lampung
- [2] Prasetyani IW, Waluyo HD, Budiarmo A. 2014. Pengaruh Kualitas Pelayanan, Citra Merek dan Kualitas Produk terhadap Keputusan Pembelian Konsumen Sepeda Motor Honda Beat di PT Nusantara Sakti Semarang. *Jurnal Ilmu Administrasi Bisnis*.
- [3] Wismantoro Y. 2013. Analisis Faktor-Faktor yang Mempengaruhi Kepuasan dan Loyalitas Pelanggan. *Jurnal Penelitian Ekonomi dan Bisnis*
- [4] Cahyadi, W. 2009. *Kedelai : Khasiat dan Teknologi*. Bumi Aksara. Jakarta
- [5] Ruhimat, D. 2008. *Kepuasan Pelanggan*. PT. Gramedia Pustaka Utama. Jakarta.
- [6] Suryawan, S dan Dharmayanti, D. (2013). Analisa Hubungan Antara *Experiential Marketing, Customer Satisfaction Dan Customer Loyalty* Cafe Nona Manis Grand City Mall Surabaya. *Jurnal Manajemen Pemasaran*. 2 (3) : 3.
- [7] Arikunto, S. 2002. *Prosedur Penelitian Suatu Pendekatan Praktek*. Edisi Revisi V. Rineka Cipta, Jakarta
- [8] Kerlinger. N. F. 2000. *Azas-azas Penelitian Behavioral*. Gajahmada University Press, Yogyakarta
- [9] Malhotra, 1999. *Basic Marketing Research Application to Contemporary Issues*. Prentice Hall International, New York

- [10] Supranto. 2001. Pengukuran Tingkat Ke-puasan Pelanggan untuk Meningkatkan Pangsa Pasar. PT. Rineka Cipta, Jakarta
- [11] Santoso. 2011. Persepsi Konsumen Terhadap Kualitas Bakpao Telo Dengan Metode *Importance Performance Analysis (IPA)*. *Jurnal Teknologi Pertanian*. 12 (1) : 9.
- [12] Meng Seng Wong, Nishimoto Hideki and Philip George,. (2014), *The Use of Importance Performance Analysis (IPA) in Evaluating Japan's E-government Services*, Journal of Theoretical and Applied