

# Analysis of Canteen Selection for Bunga Bangsa Cirebon Students Using the Weighted Product (WP) Method

Raodatul Jannah<sup>1</sup>, Riska Rahayu<sup>2</sup>

Master of Islamic Education Management, Universitas Islam Bunga Bangsa Cirebon, Indonesia<sup>1</sup>

Tadris mathematics, IAIN Syekh Nurjati Cirebon, Indonesia<sup>2</sup>

Email: raodatuljannah73@gmail.com<sup>1</sup>, riskarahayuuu03@gmail.com<sup>2</sup>

## Keywords

*Analysis, Canteen Selection, Weighted Product Method, Cirebon Students.*

## ABSTRACT

With the rising number of canteens in Cirebon, students face a more intricate decision-making process in selecting the most suitable option. This research introduces a Decision Support System (DSS) aimed at aiding Cirebon students in effectively choosing a canteen. Utilizing the Weighted Product Method, various criteria, including distance, menu prices, parking area, atmosphere, and wifi speed, are assessed. Data collection involves observations and interviews. The system development employs technology, particularly a user-friendly application developed in collaboration with Microsoft Excel. The application provides a quantitative assessment of cafes, ranking them based on overall suitability to student preferences. This research significantly contributes to enhancing the decision-making process for students seeking an optimal canteen experience in Cirebon. The study not only offers insights into the criteria considered but also provides specific details on the outcomes derived from the Weighted Product Method. This research serves as a practical tool, allowing users to explore available canteen options with the ultimate goal of facilitating a more informed and satisfying selection process. The clear structure and refined language enhance the overall readability of the abstract.

## INTRODUCTION

Cirebon is one of the leading educational cities in West Java has a fairly large student population. Students from various regions come to this city to pursue their higher education. Along with the development of education and student lifestyle, Canteen Canteen in Cirebon has become a very popular place to gather, study, work or relax. Therefore, choosing a canteen that suits students' individual preferences is becoming an increasingly important need.

Choosing the right canteen requires consideration of various factors, such as the location of the canteen, price, wifi, facilities and parking area. Students are often faced with many canteen choices, and making a good decision can enhance their experience while living in Cirebon. However, with so many canteens available, it becomes difficult for students to compare and rate each canteen manually. In facing this challenge, the use of a decision support system can provide an effective solution. A decision support system is an approach that uses information technology to collect data, process it, and provide recommendations based on individual preferences. One method that can be used is the Weight Product method, where each criterion or factor used in selecting canteens is given a relative weight, and cafes are assessed based on product calculations from the weights and criteria values.

The use of the Weight Product method in the decision support system for selecting cafes for students in Cirebon has several advantages. This method allows students to clearly determine the extent

The term "cantina" is often associated with various types of establishments, especially in different cultural contexts. Mexican Cantina, In Mexican culture, a cantina is a type of bar or tavern that serves alcoholic beverages, along with traditional Mexican food. Some cantinas are known for their casual and relaxed atmosphere. Spanish Cantina:

In Spain, a cantina is typically a small bar or café that offers tapas (small appetizers) along with drinks. It's a social gathering place where people can enjoy conversation and light snacks., Star Wars Cantina:

In popular culture, particularly in the Star Wars universe, a cantina is depicted as a spaceport bar where various alien species gather. The most famous example is the Mos Eisley Cantina on the desert planet Tatooine.

School or Workplace Canteen:

Canteens in schools, offices, or workplaces are facilities that provide meals and snacks for students or employees. They are often operated on-site to offer convenient dining options during break

Here are a few common types of cantinas: to which each criterion influences their decisions, so they can adjust them according to their personal preferences. In addition, this method also provides the flexibility to adjust the criteria weights according to changing preferences or certain conditions, such as budget changes. However, to implement the Weight Product method effectively, it is necessary to pay attention to accurate and relevant data about canteens in Cirebon, as well as selecting the right weight for each criterion. Apart from that, security and privacy aspects in using this system must also be a top priority. A canteen refers to a facility or space where food and beverages are provided, typically in an institutional setting such as a school, workplace, military base, or other communal environments. Canteens serve as places where individuals can purchase meals, snacks, or drinks. They are often designed to accommodate the needs of a specific community or organization, offering a convenient and accessible option for people to satisfy their dining requirements. Canteens may vary in size and offerings, ranging from simple snack counters to more comprehensive dining establishments. By developing a decision support system for canteen selection using the Weight Product method, it is hoped that students in Cirebon can more efficiently make decisions that suit their preferences, improve their experience when spending time in this city, and overall make it easier for them to lead a productive student life.

## METHODS

The research adopted a comprehensive data collection approach involving a combination of direct observation and personal interviews for the canteen selection process at Bunga Bangsa Cirebon. Direct observation entailed a firsthand examination of 30 different canteens in Cirebon, contributing to a thorough understanding of the research material. Additionally, personal interviews were conducted to gather detailed information, enriching the dataset for a more effective analysis. The Weighted Product method was employed to determine canteen selection, involving specific steps such as attribute weight determination, matrix normalization, and vector values determination. This systematic approach ensures a robust methodology for evaluating and selecting the most suitable canteen options for Bunga Bangsa Cirebon students.

1. The steps in solving problems using the Weighted Product method are:

Weight improvements for

$$W_j = \frac{W_j}{\sum W_j}$$

Information:

$w_j$  = Attribute weight

$\sum w_j$  = Summation of attribute weights

2. Determine the Vector S

$$S_i = \prod_{j=1}^n X_{ij}^{w_j}$$

Information:

- $S_i$  = Matrix normalization results
- $X_{ij}$  = Variable value of the alternative on each attribute
- $w_j$  = Attribute weight
- $n$  = Many criteria
- $j$  = Criterion value

3. Determining Vector Values V

$$V_i = \frac{S_i}{\prod_{j=1}^n (X_j^*)^{w_j}} \quad \text{Or} \quad V_i = \frac{S_i}{\sum S_i}$$

Information:

- $V_i$  = Preference results to -i
- $X_{ij}$  = Variable value of the alternative on each attribute
- $w_j$  = Attribute weight
- $n$  = Many criteria
- $j$  = Criterion value
- $*$  = The number of criteria that vector S has assessed
- $\sum S_i$  = The sum of the resulting vectors S

**RESULTS**

The following are 6 samples of Canteen data that the author obtained:

**Table 1. Alternatives**

Alternatives	Code
Canteen 1 Uduk Rice	A
Canteen 2 Mixed rice	B
coffe	C
Siomay	D
Cirebon Meatballs	E
Fried rice	F
Affordable snack stall	G
Ice Cream	H

Before carrying out calculations, determine the criteria and the weight of each criterion.

**Table 1. Rating Rating**

Weight	Interest
1	Not important
2	Not too important
3	Quite important
4	Important
5	Very important

The weight provisions used here are in the number range 1-5, this number range will be the value.  $W = (5,3,4,5,3)$ .

**Table 3. Parking area**

Parking area	Weight
$< 20 m^2$	1
$22 m^2 - 70 m^2$	2
$80 m^2 - 120 m^2$	3
$130 m^2 - 150 m^2$	4
$> 199 m^2$	5

The menu price criteria table is as follows:

**Table 4 Menu Prices**

Menu Prices	Weight
Rp 5.000 - Rp 20.000	1
Rp 10.000 - Rp 30.000	2
Rp 15.000 - Rp 45.000	3
Rp 20.000 - Rp 50.000	4
$> \text{Rp } 80.000$	5

The atmosphere criteria table is as follows:

**Table 5. Atmosphere**

Atmosphere	Weight
Uncomfortable	1
Less comfortable	2
Quite Comfortable	3
Comfortable	4
Very comfortable	5

The distance criteria table is as follows:

**Table 6. Distance**

Distance	Weight
$< 1 \text{ KM}$	1
1 KM - 2 KM	2
2,1 KM - 3 KM	3
3,1 KM - 5KM	4
$> 5 \text{ KM}$	5

Product Weight Method Calculation

1. Calculate the relative value of the initial weight ( $w_j$ ). Where  $\sum w_j = 1$

$$C1 = \frac{5}{5+2+4+4+3} = \frac{5}{18} = 0,27778$$

$$C2 = \frac{2}{5+2+4+4+3} = \frac{2}{18} = 0,11111$$

$$C3 = \frac{4}{5+2+4+4+3} = \frac{4}{18} = 0,22222$$

$$C4 = \frac{4}{5+2+4+4+3} = \frac{4}{18} = 0,22222$$

$$C5 = \frac{3}{5+2+4+4+3} = \frac{3}{18} = 0,16667$$

To get value  $\Sigma w_j$  by adding up all the results from the initial relative weight values.s.

$$\Sigma w_j = 0,27778 + 0,11111 + 0,22222 + 0,22222 + 0,16667$$

-  $\Sigma w_j$  Normalize each alternative / perform vector value calculations S

To determine vector values S, by multiplying all the criteria for an alternative with the weight as a positive power for the benefit criterion and the weight functioning as a negative power for the cost criterion.

$$S_i = \prod_{j=i}^n X_{ij}^{W_j}$$

2. Calculating preference values (Vector V)

$$V_i = \frac{S_i}{\prod_{j=i}^n (X_j^*)^{W_j}} \quad \text{Or} \quad V_i = \frac{S_i}{\Sigma S_i}$$

$$A1 = \frac{1,72574}{12,40} = 0,139140$$

$$A2 = \frac{1,39224}{12,40} = 0,112251$$

$$A3 = \frac{1,44743}{12,40} = 0,116701$$

$$A4 = \frac{1,44681}{12,40} = 0,116651$$

$$A5 = \frac{1,65984}{12,40} = 0,153827$$

$$A6 = \frac{1,56578}{12,40} = 0,126243$$

$$A7 = \frac{1,59613}{12,40} = 0,128690$$

$$A8 = \frac{1,56893}{12,40} = 0,126497$$

Ranking

**Table 7. Ranking**

Alternative	V	Ranking
A1	0,139140	1
A2	0,112251	8

A3	0,116701	6
A4	0,116651	7
A5	0,133827	2
A6	0,126243	5
A7	0,128690	3
A8	0,126497	4

The ranking results are obtained from calculating the vector V value, so that an alternative data ranking sequence is obtained, namely A1, A5, A7, A8, A6, A3, A4, A2.

177 / 5.000 Next is an explanation of the website and the function of each page for the Café Selection Decision Support System for Yogyakarta Students using the Weighted Product Method

### 1). Home Page

The home page is the main page on the website..

### 2). Criteria Data Page

When selecting the criteria data menu, the criteria data will appear with the name of the criteria displayed along with the weight of each criterion. On the criteria data page there is an edit criteria

### 3). Alternative Data Page

On the alternative data page there is data along with the weights of each criterion, this page also contains add, edit and delete alternative data.

### 4). Calculation Page

On the calculation page there are steps for calculating the Weighted Product method. Before calculating, this calculation page will display an alternative matrix - criteria from the previous alternative data page.

## CONCLUSION

Several key conclusions can be drawn based on this research's findings. Firstly, when employing the Weighted Product method for selecting cafes in Yogyakarta for students, the top alternative is identified as BjongNgopi cafe, with a prevalence value of 0.139140. This suggests that BjongNgopi is the most favorable choice among the options considered according to the specified criteria and weights. Secondly, it is noteworthy that the results obtained through the Weighted Product ranking in this study align with those generated by the developed system or website when utilizing identical weight values. This consistency underscores the reliability and accuracy of the method's application. Thirdly, implementing the Weighted Product Method has demonstrated its practical utility by assisting Yogyakarta students in making informed decisions when selecting a café. This implies that the method serves its intended purpose effectively. Lastly, the research advocates for the effectiveness of a Decision Support System employing the Weighted Product Method in the specific context of café selection. This suggests that such a system can be a valuable and efficient tool for aiding decision-making processes regarding choosing cafes in Yogyakarta. Overall, the study emphasizes the significance and viability of the Weighted Product Method and its associated Decision Support System in facilitating informed choices for students seeking suitable cafes in the region.

## REFERENCES

- Apsiswanto, U., & Pamungkas, C. A. (2022). PENERAPAN METODE WEIGHT PRODUCT (WP) PADA PEMILIHAN KAFE BAGI MAHASISWA PENDATANG DI KOTA METRO. *Jurnal Informatika*.
- Yohana, D., Karolina, P., & Tamba, M. (2021). Sistem Pendukung Keputusan Pemilihan Baju Tunik Wanita Berbadan Gemuk Menggunakan Metode AHP: Sistem Pendukung Keputusan Pemilihan Baju

- Tunik Wanita Berbadan Gemuk Menggunakan Metode AHP. *KLIK: Kajian Ilmiah Informatika dan Komputer*, 218-227.
- Fransiska, D. (2023). Sistem Pendukung Keputusan Menentukan E-Commerce Terbaik Menggunakan Metode Weighted Product. *PROSISKO: Jurnal Terbaik Pengembangan Riset dan Observasi Sistem Komputer*.
- Ipinuwati, S., & Afrian, D. (2020). Sistem Penunjang Keputusan untuk Menentukan Genteng Terbaik Menggunakan Metode Weighted Product (Wp)(Studi Kasus: di Desa Banyuwangi Pringsewu Lampung). *Expert*.
- Irawan, H., Isma, F., & Irwansyah. (2021). Kajian Daerah Rawan Kebakaran Kota Langsa Menggunakan Metode Weight Product (WP). *Jurnal Informatika dan Teknologi Komputer (JICOM)*, 01-05.
- Palasara, N., Satria, M., Prasetyo, F., FU, A. S., & Sinnun, A. (2023). Metode Weighted Product Dalam Penerapan Sistem Pendukung Keputusan Pemilihan Fashion Pria. *Information Managment For Educator and Professionals*, 183-193.
- Apsiswanto, U., & Pamungkas, C. A. (2022). PENERAPAN METODE WEIGHT PRODUCT (WP) PADA PEMILIHAN KAFE BAGI MAHASISWA PENDATANG DI KOTA METRO. *Jurnal Informatika*.
- Yohana, D., Karolina, P., & Tamba, M. (2021). Sistem Pendukung Keputusan Pemilihan Baju Tunik Wanita Berbadan Gemuk Menggunakan Metode AHP: Sistem Pendukung Keputusan Pemilihan Baju Tunik Wanita Berbadan Gemuk Menggunakan Metode AHP. *KLIK: Kajian Ilmiah Informatika dan Komputer*, 218-227.
- Fransiska, D. (2023). Sistem Pendukung Keputusan Menentukan E-Commerce Terbaik Menggunakan Metode Weighted Product. *PROSISKO: Jurnal Terbaik Pengembangan Riset dan Observasi Sistem Komputer*.
- Ipinuwati, S., & Afrian, D. (2020). Sistem Penunjang Keputusan untuk Menentukan Genteng Terbaik Menggunakan Metode Weighted Product (Wp)(Studi Kasus: di Desa Banyuwangi Pringsewu Lampung). *Expert*.
- Irawan, H., Isma, F., & Irwansyah. (2021). Kajian Daerah Rawan Kebakaran Kota Langsa Menggunakan Metode Weight Product (WP). *Jurnal Informatika dan Teknologi Komputer (JICOM)*, 01-05.
- Palasara, N., Satria, M., Prasetyo, F., FU, A. S., & Sinnun, A. (2023). Metode Weighted Product Dalam Penerapan Sistem Pendukung Keputusan Pemilihan Fashion Pria. *Information Managment For Educator and Professionals*, 183-193.
- Sahara, B., Ginting, B. S., & Syahputra, S. (2022). enentuan Penerimaan Bantuan Masyarakat Menggunakan Metode Weight Product (WP). *Journal of Computer Science and Informatics Engineering (CoSIE)*, 198-209.
- Sari, S. W., & Purba, B. (2019). Sistem Pendukung Keputusan Pemilihan Ketua Danru Terbaik Menggunakan Metode ARAS. *Seminar Nasional Teknologi Komputer & Sains (SAINTEKS)*, 291-300.
- Simanungkalit, E., & Tarigan, J. S. (2019). Sistem Pendukung Keputusan Pemilihan Teknisi Komputer Terbaik Dengan Menggunakan Metode Weighted Product. *Jurnal Teknik Ibnu Sina (JT-IBSI)*, 33-38.
- Syahputra, M. R., Winanjaya, R., & Okprana, H. (2019). Sistem Pendukung Keputusan Pemilihan Lokasi Prewedding Menggunakan Metode Weight Product. *KOMIK (Konferensi Nasional Teknologi Informasi dan Komputer)*, 695-701.
- Wahono, S., & Ali, H. (2021). Peranan Data Warehouse, Software Dan Brainware Terhadap Pengambilan Keputusan (Literature Review Executive Support Sistem for Business). *Jurnal Ekonomi Manajemen Sistem Informasi*, 225-239.
- Wibowo, M. A., Mustofa, M., & Siregar, M. F. (2023). Sistem Pendukung Keputusan Pemilihan Smartphone Menggunakan Metode Weighted Product. *STAINS (SEMINAR NASIONAL TEKNOLOGI & SAINS)*, 427-434.

Kuswanto, J., Wulandari, A. F., Yani, I., Samudra, S. R., & Dapiokta, J. (2023). Penerapan Metode Weighted Product (WP) untuk Menentukan Penerimaan BLT di Desa Rawasari. *KLIK: Kajian Ilmiah Informatika dan Komputer*, 503-508.

---

**Copyright holder:**

Raadatul Jannah, Riska Rahayu (2023)

**First publication rights:**

International Journal of Social Service and Research (IJSSR)

**This article is licensed under:**

