

# Higher Education Strategic Analysis based on Perceptual Mapping of Prospective students in Bandung

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*Abstract - This study aimed to analyze the position of some universities in Bandung, especially the position of Widyatama University. The analysis was conducted through perceptual mapping created through a technique called Multidimensional Scaling (MDS). The position of Higher Education mapped based on 8 attribute and 7 Colleges as references in the perceptual map. Based on 8 perceptual map attribute preferences and the position of each Universities, the authors analyzed competitive advantages and disadvantages, and similarity amongst the universities. Sample size is 750 respondents. The respondents are prospective students of Higher Education. This paper Also Discussed the results of research and made some Recommendations.*

**Keywords:** High School, Multidimensional Scaling, Similarity, Competitive Advantages, and Positioning.

## I. INTRODUCTION

[1] argues that the purpose of marketing is not just expanding sales, but also know and understand the customer so that the product or service fits the customer. Positioning is a marketing strategy that aims to place the product on the market so that consumers perceived accordance with the wishes of the management [2]. Moreover, [3], and [2] reveals the importance of research on consumer perception, especially in relation to the positioning strategy. The statements presented to shape consumer perceptions of products sold. Consumer perceptions of the product itself can be mapped through a statistical technique called perceptual mapping [2].

The marketing activities need to be made in accordance with the intended market or consumers conditions, one way of understanding the market or consumer is to understand the consumers perception on the products or organization. [1] and [2].

This study aims to: (1) analyze the position of several Universities in consumer perception, (2) analyze the attributes to be a competitive advantage or disadvantage in the competition, and (3) analyze the positioning strategy that can be used to anticipate business conditions in the future, through the concept of similarity

## II. LITERATURE REVIEW

Perception is a product of an information processing in the form of stimuli presented by companies that are accepted by consumers [4]. Consumers make choice based on the perception of the inherent value of the products and services offered [5:12]. [6:101] reveals that the perception is the beginning of an action taken by consumers. And perception can affect the image of a company, because of the perception that forms the image of a company.

[4] reveals "perception is define as the process by which an individuals selects, organizes, and interprets stimuly into a meaningful and coherent picture of the world". Stimulus may be accidental, for example economic, political, social, technological, and competition conditions; or deliberate, eg programs that covered composition of the marketing mix of product, price, distribution channels and promotion [4:161]. Marketing mix could be used by a company to support the position of products in consumer perception [2], so the marketing mix has a close connection with the positioning strategy undertaken by the company. While the strategy of positioning itself developed by a company through the steps of segmenting-targeting-positioning, known as STP process [2].

## III. RESEARCH DESIGN

The processed data which is to answer the problems in this study were collected through non-probability sampling method, ie convenience sampling. as proposed by [7:293], [8], [9]. This is done by measuring the values, lifestyles, use of, and attitudes toward college students. The sample used in this research is as much as 200 respondents per cluster High School, bringing the total respondents to the three clusters for high school in the city of Bandung is equal to 600, multiplied by the completion rate [10] by 25%, then the number of samples used in this study was 750 respondents. A statistical technique used is Multi Dimensional Scaling

Consumer perceptions mapped through multidimensional scaling (MDS) techniques, which is the method used to map the universities positioning to the attributes (variables) that is used as a parameter positioning based on prospective

students' perception. The goal of MDS is to map objects based on the similarity / dissimilarity (similarity / dissimilarity) between the object. The more similar characteristics between two objects, the closer the two objects, and vice versa [11].

[11] revealed that the factor analysis, discriminant analysis, and multidimensional scaling (MDS) are three different statistical analysis tools. Factor analysis and discriminant analysis are two analytical tools aimed at reducing the data through the method of interval scaled ratings of some of the attributes that are provided for the consumer respondents, while in the analysis of MDS is respondents overall similarity judgments, so that MDS is more useful when researchers wanted to find similarity judgments made by consumers.

#### IV. RESULT

##### A. Higher Education Positions

Processing of the data to determine the position of each college in the perception of prospective students in Bandung using the Multi Dimensional Scaling refers to the concepts and techniques suggested by [12] and [13].

##### B. Preference and Higher Educations coordinates

Table 4 is the coordinates of each College,

each Euclidean distances between Universities with their respective attributes.

The analysis is conducted by looking at the object distance with preference point (euclidean distance). The closer the point of perception College to the point of preference, the more corresponding between Universities with the prevailing perception in the minds of prospective students. Furthermore the seven Colleges are discussed based on the eight attributes. The attributes is used as positioning parameters (as perceived by the consumer).

Table 4. Higher Education Final Coordinates

|       | Dimension |       |
|-------|-----------|-------|
|       | 1         | 2     |
| UTAMA | -0.617    | 0.391 |
| UNPAR | -0.663    | 0.114 |

|        |        |        |
|--------|--------|--------|
| UKM    | -0.519 | -0.130 |
| ITB    | 0.793  | 0.332  |
| UNPAD  | 0.665  | 0.035  |
| UNISBA | -0.109 | -0.532 |
| UPI    | 0.450  | -0.211 |

Table 5. Attributes Coordinates

| NO | ATRIBUT                                | DIM 1  | DIM 2  |
|----|--|--------|--------|
| 1  | Good Advertising                       | 0.165  | 0.246  |
| 2  | Populair / Famous                      | 0.168  | 0.116  |
| 3  | In accordance between cost and quality | 0.060  | -0.059 |
| 4  | In accordance between cost and benefit | -0.029 | -0.130 |
| 5  | Liked by family                        | -0.095 | -0.049 |
| 6  | Has full learning facilities           | -0.131 | -0.027 |
| 7  | Has full sports facilities             | -0.124 | -0.062 |
| 8  | Near from home                         | 0.003  | 0.003  |

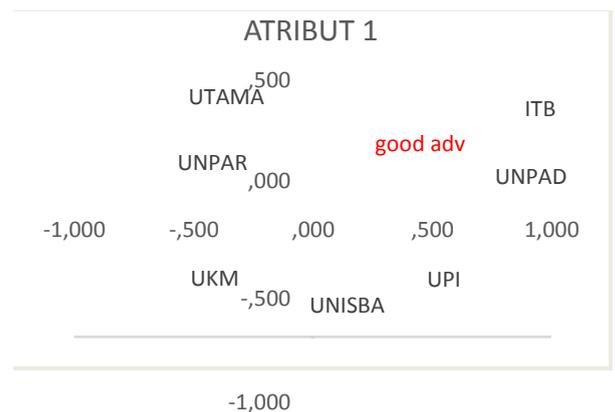


Figure 2. Positioning the 7 Higher Schools and 1<sup>st</sup> Preference attribute (good advertising)

Table 7a. Euclidian Distance between All Higher Educations and All Attributes

|  | UTAMA | UNPAR | UKM  | ITB  |
|--|-------|-------|------|------|
| Good Advvertising                      | 0.80  | 0.84  | 0.78 | 0.63 |
| Populair                               | 0.83  | 0.83  | 0.73 | 0.66 |
| In accordance between cost and quality | 0.81  | 0.74  | 0.58 | 0.83 |
| In accordance between cost and benefit | 0.79  | 0.68  | 0.49 | 0.94 |
| Liked by family                        | 0.68  | 0.59  | 0.43 | 0.97 |
| Complete learning facility             | 0.64  | 0.55  | 0.40 | 0.99 |
| Complete sports facility               | 0.67  | 0.57  | 0.40 | 1.00 |
| Near from home                         | 0.73  | 0.68  | 0.54 | 0.86 |

Table 7b. Euclidian Distance between All Higher Educations and All Attributes

|  | UNPAD       | UNISBA      | UPI         |
|--|-------------|-------------|-------------|
| Good Advertising                       | <u>0.54</u> | 0.82        | <u>0.54</u> |
| Populair                               | 0.50        | 0.70        | <u>0.43</u> |
| In accordance between cost and quality | 0.61        | 0.50        | <u>0.42</u> |
| In accordance between cost and benefit | 0.71        | <u>0.41</u> | 0.49        |
| Liked by family                        | 0.76        | 0.48        | 0.57        |
| Complete learning facility             | 0.80        | 0.51        | 0.61        |
| Complete sports facility               | 0.79        | 0.47        | 0.59        |
| Near from home                         | 0.66        | 0.55        | <u>0.49</u> |

Table 8a. Euclidian Distance between Higher Educations

|        | UTAMA | UNPAR | UKM   | ITB   |
|--------|-------|-------|-------|-------|
| UTAMA  |       | 0,079 | 0,281 | 1,992 |
| UNPAR  | 0,079 |       | 0,080 | 2,169 |
| UKM    | 0,281 | 0,080 |       | 1,934 |
| ITB    | 1,992 | 2,169 | 1,934 |       |
| UNPAD  | 1,770 | 1,770 | 1,428 | 0,105 |
| UNISBA | 1,110 | 0,724 | 0,329 | 1,561 |
| UPI    | 1,501 | 1,344 | 0,944 | 0,413 |

Table 8b. Euclidian Distance between Higher Educations

|        | UNPAD | UNISBA | UPI   |
|--------|-------|--------|-------|
| UTAMA  | 1,770 | 1,110  | 1,501 |
| UNPAR  | 1,770 | 0,724  | 1,344 |
| UKM    | 1,428 | 0,329  | 0,944 |
| ITB    | 0,105 | 1,561  | 0,413 |
| UNPAD  |       | 0,920  | 0,107 |
| UNISBA | 0,920 |        | 0,415 |
| UPI    | 0,107 | 0,415  |       |

## V. DISCUSSION

Referring to the results of the perceptual map as shown in Figure 2, and euclidian distances in Table 7a, 7b, 8a, and 8b, then some points can be discussed related to the positioning of the seven colleges in this study.

First it can be seen that based on Table 7a, b and 8a, b, strategically the closest Euclidean distance between attribute and the college is the competitive advantage of that College, while the

farthest Euclidean distance between the attribut and the College is the disadvantage of that Higher Education compare to other universities.

Secondly, based on Table 8 authors noticed that the closer the Euclidean distance between the universities with other universities in the perceptual map, the more similar the strategies of both Colleges.

Third, based on Table 8a, b it can be also seen that the closer the Euclidean distance between the universities with other universities in the perceptual map, the more competitive the two universities.

These three things are used as a basis for analyzing the strategic conditions of each of Universities in the Education Industry in Bandung.

### A. UTAMA, UNPAR, AND ITB

In Table 7a, b and 8 b seen that within the seven attributes, Three college does not have a competitive advantage compared to other universities, namely Universitas Widyatama (UTAMA, Widyatama University), Universitas Parahyangan (UNPAR, Parahyangan Catholic University), and Institut Teknologi Bandung (ITB, Bandung Institute of Technology), since it does not have the closest distance to a single attribute preferences.

The nearest Euclidian Distance to UTAMA and UNPAR is attribute 6, namely a complete learning facilities, This suggests that a comprehensive learning facility is an attribute that most either owned by UTAMA and UNPAR. So that this attribute can be used as a reference point (initial step) to develop the Colleges' competitive advantages.

On the other hand, attribute 2 (popularity) showed the most disadvantage for Widyatama University, since it is the farthest distance that is owned by UTAMA compared to the distance of the other colleges to this attribute, so it should be noticed by the University Widyatama and may be detrimental to remember the motto of the Widyatama University is "friendly campus for future business pro" containing elements popularity for prospective students who are relatively still a teenager.

The most disadvantage for UNPAR is attribute 1 (good advertising), since it is the farthest distance that is owned by UNPAR, so it should be nonticed by the UNPAR. So as to enhance the competitive advantage UNPAR need to improve its advertising messages, so it can be perceived better. Because ads can affect a person's intention or attitude to make a purchase (Schiffman and Kanuk, 2013).

In Table 8a and b shows that the nearest Euclidean distance for Widyatama with other

colleges is UNPAR, while the farthest distance is the ITB. This shows that in the perception of prospective students, Widyatama have conditions more similar with UNPAR than the ITB, resulting in the Bandung Educational Industry Widyama is UNPAR main competitor, while the furthest competitor is ITB.

The nearest Euclidian Distance to ITB is attribute 1, namely a good advertising, This suggests that a communication is an attribute that most either owned by ITB. So that this attribute can be used as a reference point (initial step) to develop the College' competitive advantages.

In addition, ITB motto is "In Harmonia Progressio" which means "Progress in Harmony" ([https://id.wikipedia.org/wiki/Institut\\_Teknologi\\_Bandung](https://id.wikipedia.org/wiki/Institut_Teknologi_Bandung)). This motto shows that ITB wants his institution perceived by prospective students as universities were "always ahead in the balance" Prospective students appear to have been perceiving accordance with the wishes of this College, since motto is a part of advertising.

The most disadvantage for ITB is attribute 7 (complete sports facility), since it is the farthest distance that is owned by ITB, so it should be noticed by the ITB. So as to enhance the competitive advantage ITB need to improve its sport facilities, so it can be perceived better.

Table 8a shows that ITB has the Euclidean distance is closest to UPI and the farthest distance is to UNPAR. This shows that the perceptions of prospective students on ITB strategic conditions are not much different from the conditions of UPI, in the sense of having similarity. The possibility of this happening because both Universities are have same status, ie state universities, while UNPAR is private univeristy, this is makes the Colleges considered similar by prospective students.

#### B. *Maranatha Christian University (UKM, Universitas Kristen Maranatha)*

On Table 7a shows three attributes that the closest distance to the Maranatha Christian University (UKM), namely attribute 5 (liked by family), attribute 6 (complete learning facilities), and attribute 7 (complete sports facilities). This shows that UKM have three competitive advantages in the Education Industry in Bandung. The closest of the three attributes are attributes 6 and 7 , it shows that in the perception of prospective students learning facilities and sport facilities owned by UKM are the best compared to the other Higher Educations

Euclidian Distance farthest is the first attribute, namely a good ad. This shows that in the perception of prospective students in Bandung, advertising UKM are not good yet, although not the

worst among the six other colleges. So it needs to be improved primarily related with the motto of this institution that this College wants the institution perceived by prospective students as a university that produces a person the owner of Integrity (Integrity), Attention (Care), and Excellence (<https://www.maranatha.edu/visi-misi-value/?lang=en>).

In Table 8a visible similarity (similarity) between UKM strategy with other universities. The closest Euclidian distance from UKM with other universities is UNPAR. As stated in previous section , the similarity between UNPAR and UKM is reasonable given that the two Institutions have the same basis, namely religion. So that both can be said to be a direct competitor (head to head competitors) from each other.

#### C. *Universitas Padjadjaran (UNPAD)*

Table 7b reveals that attribute 1, that is a good ad has a distance closest to UNPAD and UPI compared with five other universities. While OF the 8 attributes of references, which is closest to UNPAD is attribute 2, that is popularity.

These conditions shows that in the perception of prospective students, advertising UNPAD and UPI is the best among the seven colleges, while for UNPAD itself, actually the closest among the eight attributes analyzed is an attribute 2, namely popularity, though not the most popular among the seven Universities which analyzed.

Based on this, it can be concluded that in the Education Industry, UNPAD's advertising is a competitive advantage, so it is still possible to compete with other universities. While the farthest Euclidean distance is with the sixth attributes namely learning facility, so it can be concluded that the main weakness in the perception of prospective students UNPAD is still lack in learning facilities.

UNPAD does not have a clear communications message, no motto only mission of the University in the Scientific Highlights Pattern (PIP). its mission is "build glorious law and environmental in the national development." These missions can be interpreted as a position desired by the College. It seems that prospective students consider it as in accordance with the objectives to be achieved by UNPAD, since of the distance that is closest to UNPAD is Popularity. so that Popularity can be used as a first milestone of the development of the strategic position of UNPAD

Table 8b shows the perceptions of prospective students on UNPAD has similarity with ITB and UPI, Euclidean distance between UNPAD with both universities are not much different, The similarity of three Universities are They all are a state Universities, so it can be estimated that

prospective students in Bandung still has a status orientation in evaluate their prospective College, namely state and private universities. While Euclidean distance farthest is to the UTAMA and UNPAR. Euclidian distance is higher against both Private Higher Education strengthens prospective student orientation on the status of Public and Private.

#### D. Bandung Islamic University (UNISBA)

Table 7b reveals that the closest attribute to UNISBA is the attribute 4 (in accordance between cost and benefit). This shows that cost, may be in terms of tuition fees is competitive advantage for UNISBA. This advantage of course, must be maintained by UNISBA, especially in maintaining its strategic position. While Euclidean distance farthest is the first attribute, which is a good ad. This shows that the perceptions of prospective students Bandung on UNISBA has not been good yet, although not the worst among the six other universities. So that needs to be improved primarily associated with the motto of this institution ie Mujahid, Mujtahid, and Mujaddid which means Warrior, Researcher and Innovator ([https://id.wikipedia.org/wiki/Universitas\\_Islam\\_Bandung](https://id.wikipedia.org/wiki/Universitas_Islam_Bandung)) which of course has its own segment in the market.

Table 8b shows that in the perceptions of prospective students, UNISBA have similarity with UPI. Similarity both Universities are possibilities in terms of a strong orientation towards education, because in UNISBA there is one of the oldest education faculty in Bandung, so it can be estimated that the prospective students in Bandung perceive UNISBA and UPI have a similarity.

#### E. Indonesia University of Education (UPI)

Table 7b shows that there are three attributes that are closest to UPI, the attribute 1 (good advertising), attribute 2 (populair), and attribute 3 (In accordance between cost and quality). This describes that the UPI has three advantages in Education Industry in Bandung. The closest of the three attributes is attribute 3, it shows that in the perception of prospective students the attribute 3 that is in accordance between cost and quality is the best owned by UPI compared to other universities.

All three of these advantages should be maintained by UPI in maintaining its strategic position. While the farthest distance is the attribute 6, the learning facility. This shows that the perceptions of prospective of Bandung students, learning facilities owned by UPI has not been good,

although not the worst among the six other universities. So that it needs to be improved primarily associated with the motto of this institution that is "A Leading and Outstanding University"

([https://id.wikipedia.org/wiki/Universitas\\_Pendidikan\\_Indonesia](https://id.wikipedia.org/wiki/Universitas_Pendidikan_Indonesia))

Table 8b shows that in the perceptions of prospective students, UPI has similarity with UNPAD. Its similarity is possible because of a strong orientation towards the status of both universities, that is dichotomi between State and private Colleges, so it can be estimated that the prospective students perceived on UNPAD and UPI based on the status.

## VI. CONCLUSION AND RECOMMENDATION

### A. Conclusion

Berdasarkan diskusi diatas, maka dapat dikemukakan beberapa kesimpulan:

1. Based on the similarity, there are groups strategy based on the perception of prospective students:

a. Group that do not have the advantage that consists of the Widyatama University (UTAMA), the Parahyangan Catholic University (UNPAR), and the Bandung Institute of Techonology (ITB).

b. Group that have obvious advantages, namely Maranatha Christian University (UKM), Padjadjaran University (UNPAD), Bandung Islamic University (UNISBA), and Indonesia University of Education (UPI). UKM has three advantages those are liked by family, complete learning facilities, and complete sports facilities; UNPAD has the advantage in term of of good advertising; UNISBA has the advantage in terms of in accordance between cost and benefit; and UPI also has three advantages in terms of good advertising, populair, and near from home.

c. Groups based on religious orientation, consists of UNPAR and UKM

d. Groups based on the status of Colleges, namely the State Universities, which consists of UNPAD, ITB, and UPI; and a group of private universities consist of UNPAR and UTAMA.

2. Learning facilities attribute owned by UTAMA and UNPAR is most likely to be the starting point in developing a competitive advantage by them.

3. Attribute of good advertising owned by ITB is the most likely to be the starting point in

developing a competitive advantage by this College.

### B. Recommendation

Based on the above conclusions, some recommendations can be given here:

1. Widyatama and UNPAR if it will develop a competitive advantage in the Education Industry in Bandung can be started from the development of learning facilities at their disposal.
2. The ITB can develop competitive advantage through a good advertising design planning, considering the attributes of a good ad is an attribute that has the smallest Euclidean distance to the ITB compared with 7 other attributes.

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