

Cluster analysis in the determination of Widyatama University Students Segments

Taufik Rachim, Zulganef

Business and Management Faculty of Widyatama University
Jl. Cikutra 204 A Bandung-Indonesia
taufik.rachim@widyatama.ac.id, zulganef07@yahoo.com

Abstract - *One of the important thing in the company's activities is marketing strategy. Marketing strategy could be developed through the process of segmenting – targeting – and positioning. This research is part of a development strategy based on Segmenting - Targeting – and positioning process. This study examines the segments that can be used as a base by a university, especially the University of Widyatama in determining the main segment(s), target and position of the university. Through cluster analysis, this research showed that the segment of Widyatama University could be divided into four profile segments, namely: the first profile is consists of variable age, semester, the domicile, and sibling; the second profile is consists of gender; the third profile consists of department, and the fourth profile is consists of parents job status. This research shows that the institution, in this case Widyatama University should considers the 4 segments to make marketing policies, such as product (curriculum), promotion and price. For example, the curriculum should considers gender, and promotion should considers siblings and parents job. The only widyatama students as respondents is a limitation of this research, it should be validate into other university students as respondents.*

Keywords: segmenting, targeting, positioning, cluster analysis

I. Introduction

Zulganef and Garniwa (2007) shows the condition of Widyatama University brand awareness in perception of University student candidates, It is the third lowest position from seven other private university that observed in west java. On the other hand, the applicants who are propose to study a Widyatama university in last three years shows growing, Table 1 shows the growth. Admission form sold was increase from year to year since 2006/2007 academic period to 2008/2009 academic period. The university has sold 1956 admission forms in 2006/2007, in 2007/2008 the sold increase into 2215 expemplars, and in 2008/2009 had sold 2504; the average increasing is around 13%. Tabel 1. Student candidates Interest growth to widyatama university Quantity 06/07 07/08 08/09

Admission Form Sold in 1956 is 2215 2504

Tabel 1. Student candidates Interest growth to widyatama

Quantity	06/07	07/08	08/09
Admission Form Sold	1,956	2,215	2,504

The second phenomenon that can be point out as a background of this research is the recovery of economic conditions in Indonesia after the 1997 monetary crisis that resulting 3328 family which have a prosperity in between

US 5-20 billion. And other family that have a prosperity of 20-100 billion estimated is 167 families, 80% living in Jakarta, 12,6% in Surabaya, 3,3% in Bandung and 4,1% spreading in other region in Indonesia. All this family categorized as High Net Worth Individual (HNWI), in year of 2006 the growth of this group raised 16% and Indonesia listed as the third highest growth country in Asia Pacific after Singapore and India.(Source: Internet article/Wealth Indonesia.com) The changing of economic into better condition indicated by the growth of group that have a wealth in high scale in Indonesia (High Net Worth Individual). It is showed the probability of increasing demand in education in the future. Generally, the people income has a correlation with education demand; it means that the increasing in income will affect the demand of better education.

The increasing of the study demand that showed by the increasing applicant to study in widyatama university, and the economic growth after the crisis showed great opportunity for widyatama university to create the marketing programs more specifically, and more clearly, in term of the creation of concepts that come initially from understanding market segment(s), so that concepts could increasing the interest of student candidates to study in widyatama university. One way to understanding the student is treated them as customers that has some segments that are different in interest or some other conditions. And one way to understand the customer segments are through profiling. Segmenting their profile is known as segmentation (craven 2003, Kotler and Keller,2009)

Based on the phenomenon above, the purpose of this research are:

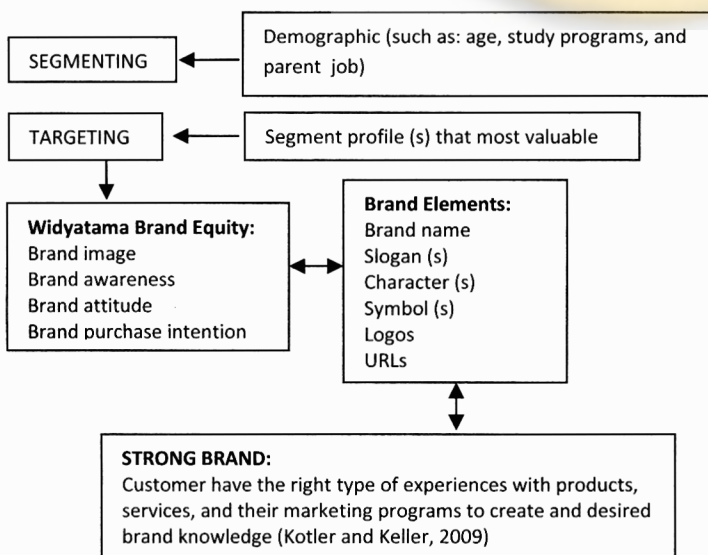
1. Identified the existing segments in Widyatama University consumer, in this case is the student of Widyatama University. (segmenting)
2. What kind of segment(s) that can be choose as the target(s) of Widyatama University? (targeting)
3. What kind of brand elements that influenced and associated with segment(s) profile of widyatama university?

II. Literature Review

Craven (2003) expressed that one of the first step (move) to expand market is understand the existing market segments (segmenting), then choose one or more segment(s) (targeting), and finally is positioning the product according to the chosen segment(s) target. Additionally, one of company programs to position the product in consumer mind is brand imaging, so that the company brand will be formed in consumer mind. Brand imaging is created through understanding brand equity firstly since brand image is a part of brand equity. The other part of brand equity is brand awareness, brand attitudes, and brand purchase intentions. The four elements of brand equity can help organizations to positioning their company or brand in market.

Paradigm that used to elaborates widyatama university brand image development in order to make student candidates interesting to study at widyatama university is shows at figure 3. The Paradigm is started from the understanding of market segments of widyatama university student through the measurement of the value and lifestyle, usage and attitudes through the university. It is helpful in creating customer based - brand equity. Afterward the segmentation will put as a basic to setting the target (s) that suitable with the vision and mission of widyatama university.

Figure 1. the paradigm of research



Based on the measurements of the value and lifestyle, usage, and attitude of the student candidates, the brand equity in the mind of student candidates can be cover up. Brand equity is the added value endowed on products and services. It may be reflected in the way consumer think, feel, and act with respect to the brand, as well as in the prices, market share, and profitability the brand commands for the firm (Kotler and Keller 2009). The Brand equity is consists of: brand image, brand awareness, brand attitude, and brand purchase intentions.

Understanding brand image, brand awareness, brand attitude, and brand purchase intentions can be utilize as a basic to decide what message to delivered to the market (message strategy), how to delivered (creative strategy), and who should delivered (message source) (Kotler and Keller, 2009:517). Afterward the three elements could be applied in marketing mix. Then the brand equity is articulates in form of brand elements: name, slogan, character, symbol, logo, and URL which are suitable to the image that perceived by consumer. Next step is designing promotion programs based on the image of Widyatama University through the promotional mix. Finally, the promotional program is use to create strong brand.

The firm segments measurement is conducting through understanding the value and life styles, usage, an attitude of the consumers. Through the comprehension of this factor, we can get the understanding of the existing segments in the market. (Craven, 2003). On the other hand, brand equity measurements is conducting through brand elements, such as: brand name, slogans, characters, symbols, logos, and URLS. Subsequently the organization comprehension through the brand equity will be the basic in developing message strategy, creative strategy, and message source. Message strategy, creative strategy, and message source are implementing in promotional mix programs that create strong brand condition, the condition when customer get the right type in products experiences, services, an firm marketing programs in order to forming the brandknowledge (Kotler and Keller, 2009).

III. Research Design

Refer to the paradigm and this scope, so this research is an exploratory research that explores widyatama university students segments, beside, the collecting data method is survey, the method that used to cover up *ex post-facto* data (Singh, 1986:358). The respondents are widyatama university student, since they are assumed as the widyatama products customer. In this research student candidates is not observed since they are assumed has an equal conditions with widyatama students.

Statistic technique used in this research is cluster analysis. Sample size is determines through convenience sampling method. By measuring the value, life styles, usage, and student's attitude. Cluster is statistic method that the main

purpose is to categorizing object based on the object's characteristics, and classified objects (respondent) based on their similarity profile characteristics (Hair, et al., 1998:473). Sample size is 300; however the questionnaire given to respondents is 375 due to completion rate as suggested by Malhotra (2002). Response rate of the respondent responds is 244.

The next stage is market targeting, It was conducted base on Widayatama University vision and mission. This stage was qualitative analysis with exploration the vision and mission first, then based on the vision and mission it can be decided the market segments that been chosen to become promotion target. In Stage fourth, the authors were analysis brand equity. This stage was also qualitative approach based on market segments profiles that was taken based on brand elements such as, brand name, slogans, characters, symbols, logos, URLs (Kotler and Keller, 2009).

IV. Result

This research was conducted on student at management and business faculty of Widayatama University Bandung, with total respondent 244. The statistic tools used to analyze was descriptive which was describing respondent profiles, and cluster analysis to understand existing segments that exist in Widayatama. Some information that have been collected from student are: gender, study program, age, semester, domicile, parent occupation, and number of siblings.

A. Respondent Profile

This research shows that the most part of sample is woman (54,9%), Study program that take by student is mostly management program (Bachelor degree) (57,4%), respondent commonly having age within 18-20 (65,2%), 21-23 years (32%), 24-26 (5%), and 2 above 26 years old (0,8%). Most of correspondent, especially business and management faculty are in 4th semester (32,8%), this is shows that respondent are higher school students in the middle semester . So the researcher has an assumption that the respondent has an optimal attitude and behavior in study process. About (44,3%) students living in east Bandung. Widayatama university is located in east Bandung, so the data shows that widyatama student lived near college location. Most of widyatama higher schoold student have a parent with an occupation as civilian worker (38,5%) and self employed parent (31,6%). This is show that family or culture that become a background of behavior and attitude widyatama university college are background of self employed and civil worker occupation. Widyatama college student commonly have 2 siblings (15,2%), and 1 sibling (14,3%). This showed that widyatama college student are the 1st child. Psychologically commonly the 1st kid have higher

self esteem and discipline than second or third child.

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V. Cluster Analysis

Sharma (1996) said that cluster analysis is used to combining the data (observations) to the groups or clusters, :

1. Every cluster or group(s) is homogenous or compacted based on certain characteristics, so that the data in every group have a similarity.
2. Every groups should be different from another groups based on the similarity characteristics, so the data that in one group should be different from another group(s).

A. Choosing Similarity Measurement

Sharma (1996) expressed four ways to measure similarity between object in cluster techniques, 1st the techniques that measure similarity based on the distance between objects in Euclidian (Euclidian distance), 2nd techniques to measure distance based on mahalanobis (mahalonobis distance), techniques to measure the distance based on coefficient associations (coefficient associations), and techniques to measure distance based on correlations

coefficients (correlation coefficients). Refer to Sharma (1996), the techniques to measure the distance that been used in this research is Euclidian distance, remaining that the data been collecting have a different scale and should be standardize. For example; age variable scale using ratio, but domicile scale should be using nominal scale.

B. Cluster Techniques Used

There are two type of clustering techniques that can be used, hierarchically and non-hierarchically techniques (wuensch, <http://faculty.chass.ncsu.edu/garson/PA765/cluster.htm>, January 27th 2010). Hierarchically techniques usually used to data that was not more than 300 respondents. So this research was choose hierarchically cluster techniques .

C. Clustering Method

Clustering method that been used is **ward** method which are the distance among clusters is the total square of all variables. This procedure was tending to group the variable into the smaller cluster in every group (Hair, 1998). This method used because the data that been processed have different scale and focus to mean value. Figure 2.

D. Clusters that have been chosen

Total cluster that been chosen was based on the dendrogram graphic, graphics that shows clustering process in form of trees graphics. Based on dendrogram, so it can be seeing the clustering process and based on the process researcher can decide possibility of total cluster.

E. Interpretation to the cluster result

Figure 2. Dendrogram

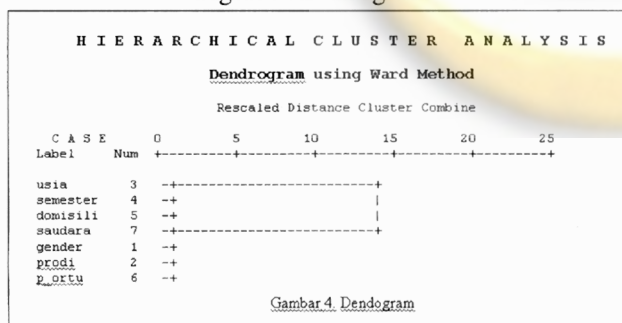


Figure 2. expressed dendrogram that get in this research. In figure 4 showed that clustering process occurred in 1st step. The processed data shows that widyatama student could be segmented into 4profiles:

1. first segment consist of age, semester, domicile, and siblings variables
2. Second, third, and fourth segments consist of 1 variable for each, those are: gender, study programs, and parents occupation.

Based on the data processing, the widyatama student can be analyzing based on the 4 segments. 1st' profile shows that student can be categorize into: age, semester, domicile, and number of siblings. For example: first profile of student is the age within 18-20, 4th semester, domicile in east Bandung, and having 2 or more siblings

Second profile shows that widyatama student can be categorized based on gender, those are woman and man. It is shows that woman and man are really two different group profiles. Consequently widyatama university should make different curriculum for different sex. The Third profile shows that widyatama student can be categorized based on study program. It is expressing that widyatama can be categorized his student based on their study program characteristics, for example bachelor accounting group and diploma accounting group. Fourth profile shows that widyatama college student can be categorized based on parent's occupations. It is shows that widyatama student character can be differed based on their parent's occupation background.

VI. Market Target and Brand Positioning Strategy

Referring to the cluster result above, so we can infer the possibility market target are 1st segment, college student within the age of 18-20, 4th semester, east Bandung domicile, and have 2 sister or brother. And based on this research, the brand positioning strategy should be match with those target market, in this things are brand, slogans, characteristics, symbols, and logos matching with characteristics of the teenager within age of 18-20, 4th semester, east Bandung domicile, and 1st child (have 2 younger sister or brother)

VII. Conclusions and Recommendations

Based on the analysis can be refer to:

1. The segments of Widyatama student can be categorized into four primary segments, age, semester, domicile, and number of siblings. Consequently Widyatama institution programs, such as marketing or curriculum should considers those segments. For example, in promoting the institution, the marketing division could make advertising based on domiciles and sibling.
2. Based on the segment characteristics, in order that, the primary segment profile of widyatama student is aging within 18-20, 4th semester, and east Bandung domicile, and have one or two brothers or sisters. Consequently the marketing division of widyatama should concentrate or makes east Bandung as promotion target priority, teenage-look advertising, and make the students in 4th semester as word of mouth agents.
3. Refer to primary segment profile, especially teenagers and 4th semester; widyatama student can be a primary target to Widyatama University as opinion leaders for their siblings.

4. Refer to the target, so the positioning target for Widyatama University should be made based on this segments target characteristics.

5. Refer to the target, consequently, brand elements should follow teenager-look, for example:

a. Brand name: class name no more A,B,C, etc Classes, but it should be teenager's name, such as: tweety class, mickey class (from mickey mouse), Minnie class (from Minnie mouse), Mark Twain class, etc.

b. Slogan (s): remain: "friendly campus for future business pro"

c. Character (s): it should be used a teenage friendly characters such as Mc donald's

d. Symbol: it should be a scientific teenage friendly or popular symbols, for examples: Alber Einstein, isaac Newton, etc

e. Logos: it should be used a teenage friendly logos

f. UTLs: it should be used a teenage friendly UTLs

Calon Mahasiswa Di Jawa Barat," unpublished,
Universitas Widyatama Library, Bandung.
WWW. Wealth Indonesia.com

VIII. Limitations and further research

Limitations of this research :

1. This research was conducted only in Widyatama University; it will not generally represent all students in Bandung. Consequently, there should be research with broader respondents e.g. involving students of other universities in Bandung, and involving another respondent types, such as: employees, the women of Household, or the Manager.

2. This research is a part of the whole paradigm, meaning that this research not observed the positioning or analyzed brand elements that could implement by widyatama university. The paradigm of this research could be completed if followed by positioning research and brand elements research as seen in figure 1.

3. The variable that been used in this research are demographic variable, this research will be more interesting if we develop into attitude and value variable (VALS)

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