THE PERCEPTION OF BANDUNG UNIVERSITY STUDENT CANDIDATES ON THE DIMENSIONS OF HIGHER EDUCATION QUALITY: A *DYADIC APPROACH* *

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ABSTRACT. There are many important things in the consumer behavior field, for instance motivation, cognition, and perception. However, not many universities or academies put an effort into investigating the consumer perception on the attributes quality. This research investigated the perception of students on quality of universities in Bandung through dyadic approach or multiple respondents. The respondents were both internal and external consumers. This study considers university students as internal consumer and students of high schools as external consumer. The result of this research are some service dimensions that internal and external consumers evaluated. These service dimensions differ from other well-known service dimensions, such as service quality (servqual) or service performance (servperf). To obtain the dimensions, the authors conducted 2 studies. Through qualitative research, in the first study the authors found 36 attributes that internal consumers evaluated, while in the second study, through quantitative approach, the authors extracted the 36 attributes by factor analysis and found 11 dimensions of university attributes evaluated by consumers. This paper not only discusses the results of the research, but also makes recommendations.

Keywords: High School Students, Perceived Quality, Universities, Factor Analysis, dyadic.

INTRODUCTION

There are many concepts or theories about service quailty dimensions that are perceived by consumers, namely *servqual concept* which is suggested by Parasuraman *et al.* (1988), or *servperf concept* expressed by Cronin and Taylor (1992). Both of the measurements have been investigated several times and by several investigators, such as Lee *et al*. (2000).

Zeithaml and Bitner (1996:115) suggested that dimensions of service evaluated by service consumer are *people, process, and physical evidence*. While the others, such as Lovelock (2001) explained that service dimensions are *product elements, place and time, promotion and education, price and other user costs, process, productivity and quality, people, and physical evidence*. These concepts showed that service dimensions which are evaluated by consumers are highly varied.

Higher Education customers could be classified into two categories, *e.g.* internal customer and external customer (Purnama, 2002). In this paper the authors suggested that internal customer is students who are studying in Higher Educational Institution, while external customer is high school students who have just completed their study and are going to continue to a tertiary institution.

This research results also supported the notion that services customers will have different perception on quality dimensions for each type of service which suggests that understanding Higher Educational consumers is important. Day and Montgomery (1999) highlighted the importance of understanding the real consumer behavior – in terms of comprehend attitude that influence consumer when he or she purchases some goods or services. Another important notion that should be considered, especially in AFTA era is the establishment of cooperation between higher education institutions.

AFTA diminished entry barries amongs South East Asia Countries. Consequently, higher education institutions of this AFTA countries could be easily expanded their operation within these countries. Before they decide to expand their operation to another country within AFTA, firstly they have to have information about market (i.e. information about the higher education student candidates' perception on important attributes of higher education). To shortcut this information intelligence, most of higher education institutions which plan to operate in Indonesia establihed some collaborations with local higher education institutions, conduct research, or read a consumer behavior

research report. Among other techniques to understand consumer attitude is by investigating consumer perception on product attributes which could be done through exploratory research including statistical techniques, such as factor analysis technique (Hair *et al.,* 1998). The exploration to consumer perception then could be used as a starting point to analyze consumers by other statistical technique, such as mapping consumer perception on a product to show the positioning of the product (Cravens, 2003).

This research investigates the service dimensions of Higher Educational Institutions in Bandung that internal consumers and external consumers evaluated. The method used in this research is dyadic approach, which emphasised onto two types of respondents that have different perceptions on to the same stimulus (Zaltman dan Wallendorf, 1979: 535; Kim dan Lee, 1997).

This research objectives therefore are::

1. Identify the factors perceived by internal consumers and external consumers as well
2. initiate efforts to find first variables that could be considered in further explanation or causal research, i.e. to investigate consumer preference through Conjoint Analysis in concept testing at product development program, or investigate positioning using multi dimensional scaling

This research is expected to contribute in:

1) *theoritically*, this research would be a part of consumer behavior theory development through perception investigation of university students and candidates;
2) *practice*, this research made a contribution as an insight to consumer perception on higher education attributes;
3) *practice,* the results of this research is an intiate effort to develop higher education strategic plan

LITERATURE REVIEW

Some public universities in Jawa Barat tend to increase student capacity through opening D3, extension, and special trace programs (Pikiran Rakyat, June 14, 2004). The conditions show that the competition among higher educational institution is getting more ccmpetitive. Therefore, higher education managers should be able to place their institution as close as possible to needs and wants of the possible student cadidates, and make the best programs or strategies based on students candidates' perception. This perception could be a foundation to make some management strategies, such as marketing or human resources strategies. Among other ways to make the strategy is based on comprehension to consumer behavior. A consumer behavior is an intiate to make a strategy for an organization (Day dan Wensley, 1988; Berkman dan Gilson, 1986).

Drucker (in Kotler, 2002:9) suggests that marketing program goal is not only to extend the sales, but also to comprehend and understand customers, so if we make a product based on understanding to customer needs and wants, then the product or service will match the customer needs and desires. If our products or service match with customer needs and wants , then it shows that our products or services have a good positioning.

Positioning is a marketing strategy to post products, so the consumers products perception will fit to management perception. (Craven, 2003). On the other hand, Rao and Steckel (1998), and Craven (2003) express the importance of consumer perception, especially the positioning strategy research.

Among other ways to describe a positioning of a company is to make statement exposed in advertisement. Such as statement “untung pake esia,” from PT.Bakrie Telkom, “bukan telepon biasa” from PT Telkom Indonesia Tbk, “integrity, entrepreneurship, best for excellence,” from Higher education on telecomunication business (STMB), or “future campus for business pro,” from Widyatama univeristy.

The statements exposed are to shape consumer perception on products. The consumer perception on the products could be mapped through statistical techniques called perceptual mapping (Craven, 2003).

Perception is a result of information processing. The information processesed by consumers is a stimulus made by organizations or companies. (Schiffman and Kanuk, 2000). Consumers are made a

choice to buy based on perception on value attached to a product or service offered. (Kotler,2002). Peter and Olson (1999: 101) explain that perception is an initiate of a consumer action.

Schiffman and Kanuk (2000) suggest that *" Perception is defined as the process by which an individual selects, organizes, and interprets stimuli into a meaningful and coherent picture of the world"*. Stimulus could be the stimulus that are unconscious, such as economics, social, politics, technology, and competitive conditions, or deliberate stimulus made by organization , such as marketing mix programs which cover products composition, price, distribution channel, and promotion (Schiffman dan Kanuk 2000:161). The marketing mix can be used by a company to backup products position in consumer perception (Craven, 2000), so that marketing mix could make a good relationship with positioning strategy made by a company. Meanwhile, the positioning strategy is developed by a company through segmenting-targeting-positioning steps, name *STP* strategy (Craven, 2003).

Ries dan Trout (in Kasali, 2001:506) expressed that positioning is not just what company does to a product, but more than that is what the company does to consumer or prospect persepction. Kotler (2002) suggests that a solving to company or product positioning problem gives an opportunity to solve marketing mix problems. Marketing mix in principle is detail tactical actions of positioning strategy. Some experts' suggestion above (Kotler, 2000; Kasali, 2001; and Craven 2000) show that to have a handle on product positioning is an important thing in term of managing market.

The suggestion of Kotler (2000), Kasali (2001), and Craven (2003) give a depiction that company strategy, especially positioning strategy initiated by company conception on consumer perception on product attributes are important for marketer, so that understanding the consumer perception on product attributes is very important.

Some higher educations give an idea about the importance of periodically research on their institution conditions, such as Florida International University (FIU) which had conducted survey on students' satisfaction periodically. FIU satisfaction research in 2001 shows that some atributes are important, because those attributes made a consequences to student satisfaction. The research of FIU in 2001 showed that 109 attributes asked to the students could be simplified and be converted into 16 factors that are assumed created students satisfaction. (www.fiu.edu/~opie/cqis/index.htm).

The 16 factors are: *campus atmosphere*, *faculty*, *campus life, academic advising*, *diversity*, *comitment to nontraditional students*, *registration and electronic communication*, *fiancial aid*, *registration and course placement*, *customer service*, *intramural activities*, *administration*, *bookstore staff*, *student activity fees*, *food selection on campus*, and *parking* (www.fiu.edu/~opie/cqis/index.htm). The 16 factors found by FIU are assumed could be found in Bandung higher education students. Therefore, this research aim to explore these factors.

RESEARCH DESIGN

The method used in this research is *dyadic,* which is an approach that stresses the evaluation of two or more respondents to the same stimulus or object (Zaltman and Wallendorf, 1979: 535). Zaltman and Wallendorf (1979: 535) further explained that dyadic model in consumer behavior is Nicosia model which investigate product attributes from both consumer side and company side.

An example research that used dyadic model in consumer behavior is Gilly, *et al.* (1998) which investigated about a form of information that occur in word of mouth communication process interpersonally, that is the information sought by information seeker and information given by opinion leaders. The dyadic approach is known also as multiple respondent approach, which is a method that see a same stimulus or object from two or more respondents (Kim dan Lee, 1997).

This research used dyadic approach because it analyzed two sources of information, namely internal higher education consumers (students), and external higher education consumers (students' candidates). According to Kim and Lee (1997), some advantages of using this approach in a research are: a possibility that researchers can determined a size of variation measurement in order to (1) random measurement error, (2) systematic error sources, and (3) researcher interested constructs.

This research conducted through survey method which explained correlations between some certain variables of sociology or psychology that exist in population largely (Singh, 1986: 361), and

propose some questions to respondents through questionnaire (Singarimbun, 1989: 4; Neuman, 2003: 34). In addition, data collected through simple random sampling technique, which is technique that put emphasis on representative of sample and could make the smallest error compares with other techniques (Sekaran, 2003: 97). The sample is student candidates of some Bandung High Schools that assumed as a market for some higher educational institutions.

The subjects of this research are students and students candidates of higher education which are sought out and could evaluate higher educational institutions. Subjects research are limited to high school students that just have had completed a final examination and have had prepared to carry on to higher educational institutions.

This research was conducted into two phases. First phase was collecting information from students of higher education through qualitative method, then the information was confirmed to students candidates through quantitative approach, that is factor analysis. Factor analysis is used in this research because the objective of this research is to obtain higher educational institutions attributes dimensions that are evaluated by both internal consumers and external as well. Kohli and Leuthesser (1993) explain that factor analysis and discriminant analysis are tools which one of its objective is to reduce data through interval scaled ratings some attributes that are proposed to consumer as respondents.

DATA ANALYSIS TECHNIQUE

This research conducted qualitative and quantitative data analysis techniques. The qualitative technique is used to verify previous research through open questions as conducted by Gwinner, *et al.* (1998) when explored benefits obtained by consumers which had relationship with some service providers, e.g. dentist. Or as conducted by Price and Arnould (1999) when they conducted commercial friendships research between service provider and client. While the quantitative technique used in this research was *component factor analysis*.

Study 1: Qualitative analysis

The first study was conducted to obtain some attributes that generally evaluated by consumers of higher educational institutions, in this research called internal consumers, that is students of higher educational institutions. Therefore in this 1st study we distributed open question questionnaires to 400 students of Widyatama University. The open questions that were asked to respondents were requested them to write the 10 most important attributes when they are evaluated a higher educational institution. Of 400 questionnaires distributed, 343 questionnaires were worth to analyze, the rest were not analyzed since they were not filled in completely.

Table 1. *Higher educational institution students perception on higher educational institution attributes*

No	Description	Total	No	Description	Total
1	Students dormitory	234	19	Comfortable academic services	40
2	Tuition fee	221	20	On-line library facilities	39
3	Religious facilities	206	21	On line registration process	35
4	Student activity facilities	184	22	Companies relations	35
5	Atmosphere for teaching-learning process	180	23	Air conditioned classroom	29
6	Public facilities around campus	159	24	Adequate sports facilities	25
7	Auditorium for art, sport, and science	146	25	Information system for academic services	21
8	Visual aids for teaching and learning process	124	26	Accreditation status of higher education	20
9	Food court / canteen	117	27	Campus park	19
10	Students ID	111	28	Parking area	19
11	Campus security	99	29	Experienced teaching staff	10

12	Medical Clinic	93	30	ATM	17
13	Computer facilities	87	31	Internet facilities	15
14	Students cooperative	83	32	Higher education teaching staff	15
15	Laboratories	72	33	Toilet	15
16	Guiding and counseling	62	34	Students radio station Photo	13
17	Accessibility of campus location	57	35	Campus bus	11
18	Alumni image	55	36	Reputation of higher education	9

Source: analyzed primary data

The reason behind students chosen as the respondents because they are the consumers for their higher educational institutions. Beside that, through students' perception, it is hoped could be obtained questionnaire items which are confirmed by students as the consumers who has had experiences using higher educational institutions attributes, and students candidates whom have not used higher educational institution attributes yet. Table 1 is the results of the 1st study.

Table 1 shows 36 items that are perceived by Widyatama University students, and are assumed are variables that should be present in higher educational institutions. The first and fourth column of the Table are list number, the second and fifth column are the attributes that perceived by students, while the third and sixth column are number of students who wrote attribute listed in the second column. And it sorted by total numbers.

The second study conducted based on the 36 items obtained from the first study . The objective of the 2nd study is confirming the 36 items obtained from study 1 by external consumers of higher educational institution, i.e. the 3rd level of Bandung high school students. The 36 items were converted into close questionnaire and followed by distribution to the students. The response of the high school students was then analyzed by factor analysis technique.

Study 2 : Factor Analysis

Factor analysis technique is used to obtain some dimensions that exist in the high school student perception (Hair, et al, 1998) which is consists of: objective determination, designing a factor analysis, assumptions in factor analysis, deriving factors and assessing overall fit, and interpreting the factors.

Data Collection

Questionnaires were distributed to 5 public high schools, 2 private high schools, and 1 public vocational high school (tourism vocational high school) which were chosen through simple random sampling technique. 50 questionnaires were distributed to each high school, therefore the distributed questionnaires were 400, but the questionnaires that worth to analyze further were 251 due to some error in filling up the other 49 questionnaires, such as all items were filled in with same answers, or one item was filled in with two or more answers. 137 questionnaires (65 males and 72 females) were returned from public high school, 80 questionnaires (40 males and 40 females) were returned from private high school, and 34 questionnaires (2 males and 32 females) from vocational (tourism) high school.

Sampling Adequacy

Hair, *et al.* (1998) explained regarding the degree quantity of correlations among some variables and the appropriateness in factor analysis research, that is measure of sampling adequacy (MSA) or anti image matrix. MSA is index number that ranges from 0 to 1, the index will reach 1 when each variable is perfectly predicted without error by the other variables. Kim and Mueller (1994) then described a *rule-of-thumb index of sampling adequacy* which is suggested by Keiser as follows: The value up to 0.90 is considered marvelous, up to 0.80 is meritorious, up to 0.70 is middling, up to 0.60 is mediocre, up to 0.50 is miserable, and below 0.50 is unacceptable. Table 3 shows the overall measurement of sampling adequacy data gathered by the authors that is 0.822. The overall value of variable sampling adequacy meets the Kaiser's criteria above.

Tabel 3 *KMO and Bartlett's Test*

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.822
Bartlett's Test of Sphericity	Approx. Chi-Square	2889.703
	df	630
	Sig.	.000

INTERPRETATION OF DATA PROCESSING RESULT

After the data were processed in the purpose of this research, the results are as follow:

Factor Components
Eigenvalue and total variance of the data processing shows eleven components (latent factor) which is reduced from 36 variables processed, with the cumulative total variance from the eleven components is 62.264%. Table 4 is the factor loading table which is contributed by each of the 36 items to the eleven components.

Tabel 4. *Rotated Component Matrix(a)*

	Component										
	1	2	3	4	5	6	7	8	9	10	11
P27	.703	.087	.045	.157	.152	.099	.273	.094	.067	.059	.104
P34	.687	.011	.010	.227	.021	.164	.024	.190	.065	.223	.087
P23	.675	.069	.241	.165	.186	.032	.046	.084	.123	.083	.074
P10	.657	.154	.031	.041	.071	.118	.088	.026	.323	.232	.150
P9	.497	.058	.195	.339	.230	.192	.103	.162	.107	.194	.026
P30	.493	.137	.212	.063	.482	.030	.226	.044	.236	.103	.063
P14	.456	.243	.215	.095	.155	.200	.403	.186	.093	.006	.106
P19	.028	.693	.053	.106	.037	.185	.193	.012	.069	.162	.028
P21	.083	.654	.060	.208	.063	.017	.222	.028	.118	.132	.020
P25	.425	.629	.159	.001	.141	.090	.047	.082	.169	.005	.023
P32	.097	.364	.080	.339	.310	.250	.075	.105	.151	.003	.164
P5	.054	.033	.837	.019	.020	.073	.101	.061	.102	.058	.067
P6	.118	.039	.637	.138	.000	.086	.184	.282	.018	.040	.134
P8	.079	.288	.499	.032	.282	.404	.038	.263	.008	.129	.016
P20	.239	.257	.471	.143	.097	.338	.121	.211	.017	.165	.109
P31	.366	.256	.404	.112	.333	.288	.011	.009	.001	.047	.015
P15	.074	.134	.105	.662	.078	.313	.029	.046	.162	.027	.019
P26	.184	.130	.031	.658	.094	.009	.054	.087	.057	.182	.047
P29	.079	.230	.393	.557	.105	.000	.007	.098	.187	.177	.066
P13	.424	.314	.045	.495	.056	.072	.022	.034	.103	.092	.185
P36	.062	.034	.035	.135	.775	.014	.017	.008	.011	.016	.058
P22	.220	.513	.103	.039	.524	.113	.022	.037	.090	.129	.071
P28	.129	.062	.103	.349	.461	.206	.270	.035	.233	.028	.169
P33	.140	.175	.080	.148	.059	.733	.127	.025	.063	.171	.014
P17	.290	.114	.017	.189	.010	.623	.012	.037	.024	.256	.077
P18	.043	.244	.134	.100	.079	.033	.727	.161	.067	.094	.053
P12	.292	.030	.216	.103	.003	.186	.671	.306	.013	.048	.035
P11	.104	.190	.078	.406	.080	.113	.425	.236	.043	.288	.250

P3	.011	.046	.149	.001	.045	.068	.048	.727	.001	.100	.020
P7	.161	.135	.124	.206	.020	.260	.202	.494	.312	.023	.057
P16	.316	.464	.089	.164	.098	.176	.192	.489	.126	.021	.039
P24	.179	.153	.093	.048	.135	.014	.133	.067	.686	.173	.137
P4	.039	.143	.473	.079	.103	.104	.129	.083	.644	.064	.110
P1	.051	.005	.003	.073	.054	.014	.090	.118	.152	.722	.166
P2	.053	.053	.056	.019	.028	.002	.000	.020	.072	.067	.740
P35	.450	.126	.160	.015	.101	.139	.061	.043	.119	.315	.540

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

a Rotation converged in 13 iterations.

Table 4 shows variables that are represented by each of the component, which are:

1) Component (factor) 1 represents variables: P27 (Campus park), P34 (Students radio station), P23 (Air-conditioned classroom), P10 (Students ID), P9 (Food court/canteen), P30 (ATM), and P14 (Student cooperative)
2) Component 2 represents variables: P19 (Comfortable academic service), P21 (On-line registration process), P25 (On-line academic information system), and P32 (High quality of teaching staff)
3) Component 3 represents variables: P5 (Teaching – learning atmosphere), P6 (Public facilities around campus: chairs, TV, copy center, etc.), P8 (Visual aids for teaching – learning process: OHP, video projector, white board, etc.), P20 (On-line library facilities), and P31 (Internet access facilities)
4) Component 4 represents variables: P15 (Laboratories: physics, chemistry, accounting, management, computer, etc.), P26 (Accreditation status of higher education/university), P29 (Experienced teaching staff), and P13 (Computer facilities).
5) Component 5 represents variables: P36 (Reputation of higher education/university), P22 (Relation with companies), and P28 (Safety parking area).
6) Component 6 represents variables: P33 (Toilet), and P17 (Accessibility of campus location).
7) Component 7 represents variables: P18 (Alumni image), P12 (Medical clinic), and P11 (Campus security).
8) Component 8 represents variables: P3 (Religious facilities), P7 (Auditorium for art, sport, and science), and P16 (Counseling center).
9) Component 9 represents variables: P24 (Adequate sports facilities), and P4 (Students activity facilities).
10) Component 10 represents variable: P1 (Students dormitory).
11) Component 11 represents variables: P2 (Tuition fee), and P35 (Campus bus).

Identification of Components as Variables

According to the data processing above, the authors name **Component 1** as **campus atmosphere** variable. This factor is explained by many variables related to campus environment attributes, such as campus park, campus radio station, air-conditioned class room, and ATM services. **Component 2** is named as **academic service** variable, because it represents attributes related to the academic services provided by the University for the students, such as comfortable academic services, and on-line registration process. **Component 3** is identified as **academic primary services** variable, since it stands for the academic activities or teaching – learning process elements, such as comfortable teaching – learning process, and comfortable library. **Component 4** is referred as **academic facilities** variable, because it signifies the facilities that enable to support academic improvement of the students in teaching – learning process, such as laboratories, accreditation status, and experienced teaching staff.

The authors specify **component 5** as **good reputation** variable, because it represents the elements related to the public image of the university, such as reputation of the university and relation

with companies. **Component 6** is recognized as **physical evidence** variable, because it relates to the university's physical evidence, such as toilet and accessibility of campus location. **Component 7** is described as **campus life** variable, because it is related to campus life aspects such as, medical clinic and campus security. **Component 8** is named as **supporting facilities** variable, because it represents the attributes that are used by the students to support their learning process such as, religious facility, auditorium, and counseling center.

Component 9 is identified as **students' activities** variable, because it relates to students activities in campus such as, adequate sports facilities and student activity facilities. **Component 10** is named as **student dormitory** variable and it only represents one attribute, which is student dormitory. **Component 11** is recognized as **cost** or **fee** variable, because it represents the tuition fee that is required for the students to attend the university such as, tuition fee and campus bus. Campus bus is considered as an important thing for the students, because it can reduce their transportation expenses to campus.

CONCLUSIONS

According to the above analysis, the authors summarized into several points, which are:

1. There are 36 attributes that were evaluated by both external and internal customers. Then, the 36 attributes can be simplified into 11 dimensions which considered important and can be used as references in University development, especially Universities in Bandung.
2. The eleven dimensions collected from this research are different from general service dimensions concept, which are: product, price, place, promotion, people, physical evidence, and process. This indicates that the new students in Bandung have their own basic evaluation compared with the theory and concepts

LIMITATIONS, MANAGERIAL IMPLICATIONS, AND FURTHER RESEARCH

There are several limitations found in this research: **1)** The sample used was not in large number **2)** Pre-survey research was done among the students in one University and took place in a class room, which caused the possibility of answering incorrectly or not giving the desired full answers **3)**The random deal was only applied in choosing the High School and was not applied when choosing the students. So, most of the respondents are among high school students in science faculty **4)**The normality of the data was not examined.

Referring to the result of this research, there are several things that need to be explained as managerial implication and follow up research. They are: **1)**The managerial of the Universities in Bandung, should pay attention to the eleven dimensions and not only restricted to the concepts and theories of service dimensions that are generally known, for example: the mixture of promotion service which is evaluated by the consumer: promotion, product development, distribution channel, price, process, people, and physical evidence **2)** The limitation of this research is that it only studied the respondents in eight Senior High Schools and the research need to be extended to study more respondents in more number of schools **3)**This research can be continued with a research in positioning through perceptual mapping of Universities in Bandung, or even in Indonesia based on the eleven dimensions identified in this research.

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