

# COMPARISON OF ATTRIBUTES OF EDUCATION SERVICES AT 2 SENIOR HIGH SCHOOLS IN EAST JAVA – INDONESIA

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## COMPARISON OF ATTRIBUTES OF EDUCATION SERVICES AT 2 SENIOR HIGH SCHOOLS IN EAST JAVA – INDONESIA

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### ABSTRACT

Quality is the one of the important factors for an organization or enterprise to defend itself in the globally competition. One of the things that need to be considered in designing the quality of products (goods or services) is the perception or expectation of consumers to the benefits of the product. Educational is one of the service industry, with the main consumer are the students. This research aimed is to compare the satisfaction of educational services at the two schools, including the attributes of the service needs to be improved, by using the method of Kano. The opinions of consumers, in this case are the students, obtained through a questionnaire to assess the various services provided by the school members. The attributes that need to be improved are the things that are associated with learning facilities, such as the toilet/bathroom. While the strength is the competence of teachers, relating to the educational background of teachers.

**Keywords:** quality, service, education, student, Kano.

### 1. INTRODUCTION

Dr. Noriaki Kano, a Japanese professor and international consultant, in 1980 developed a theory of product or service development and customer satisfaction. It is called Kano Model. Kano at Qiting at al (2013) stated the model classifies customer preferences into five categories. It aims to connect the requirements fulfilled by products with customer satisfaction and identifies three types of requirements that influence ultimate customer satisfaction. Figure 1 presents the fundamental concepts of the Kano Model. The horizontal axis of the diagram indicates the extent to which a product or service aspect fulfills customer requirements or needs and the vertical axis indicates the extent to which customers are satisfied with the product or service. The three major types of requirements or needs are must-be, one-dimensional, and attractive.

#### 1.1 Must-be Requirement

Must-be requirements are also referred to as basic requirements or needs, which represent the minimal criteria that must be met by a product or service. If they are not fulfilled, customers will not be satisfied with and have no interest in the product or service. Furthermore, even if these requirements are fully fulfilled, they will not generate any additional customer satisfaction beyond a neutral level.

#### 1.2 One-dimensional Requirement

The one-dimensional line goes through the origin at 45 degrees. It represents the needs that are directly related to customer satisfaction. That is, the more functional the product or service is with regard to this type of need, the more customers are satisfied. If these types of requirement are fulfilled, they can become a strong source of customer satisfaction and should therefore be given high priority in service design or product development.

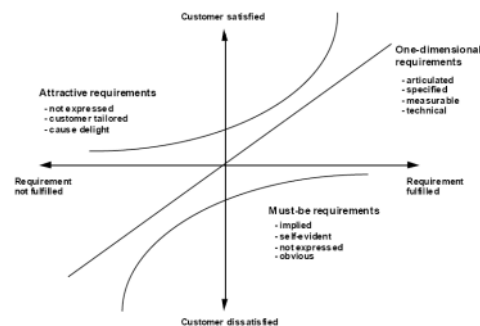


Figure 1. Kano Model Diagram

#### 1.3 Attractive Requirement

The attractive curve shows an area in which the customer is more satisfied when the product, service or process is more functional but is not dissatisfied when the product, service, or process is less functional. These types of requirement are neither explicitly expressed nor expected by the customer. Therefore, even if they are not met, they will not cause any dissatisfaction. They merely represent unexpected surprises that will be pleasing to customers if present.

This study aims to make a comparison of the attributes of education services of two senior high schools in East Java. The first one, school 'A' is in Surabaya, and the second one, school 'B' is in Bojonegoro. Both of them are private school in East Java – Indonesia, and managed by the same foundation. Surabaya is the capital of the Province of East Java. Bojonegoro is on the west side of Surabaya, located about one hundred kilometers (or three hours by car). Every year, both of the schools received about seventy new students, distributed in two classrooms.

## 2. PROBLEM STATEMENT

What are the advantages of each school by making comparison between them? The comparison includes the attributes of educational services at both of them.

In this research, we chose school A and school B. Both of them are managed by the same foundation, so they have many similarity on education facilities. So do the human resources (teachers, etc.). In the last two years, the number of new students (annual intake) was decreased, significantly. We want to know what was happening there.

## 3. ANALYSIS AND DISCUSSION

We interviewed all the students, asking for their perception about the educational services in their school. We asked some pairs of question, there are funtional and disfunfional form, related to the education services in their school.

Parasuraman at Saghier at al (2013) stated there are five dimensions of service quality: tangibility (a), reliability (b), responsiveness (c), assurance (d) and empathy (e). In this study we have twenty-eight questions.

Starting with this five Parasuraman's dimensions of service quality, we breakdowned into twenty eight questions, asking for students satisfaction related to the educational services. As a costumer, students get the perception of educational service which was done by the school (teacher etc.).

Ones of questions are:

- Computers adequacy provided in the lab for students.
- Staffs capacity to solve problems when they arise.

We asked the students to make scoring and importance level, associated with the questions. Using equation (1) for validity test, and equation (2) for reliability test, we got that the data are valid and reliable.

$$R_{xy} = \frac{\sum xy - (\sum x)(\sum y)/n}{\sqrt{\sum x^2 - (\sum x)^2/n} \sqrt{\sum y^2 - (\sum y)^2/n}} \dots\dots\dots(1)$$

Where  $\bar{x}$  = score each variable

y = total score

n = number of data

$$\alpha = \frac{k * cov / var}{1 + (k - 1) * cov / var} \dots\dots\dots(2)$$

Where k = number of variable

cov = covariance between variable

var = variance between variable

After the validity and reliability testing, we resumed the results of the questionnaire, as shown in figure 1.

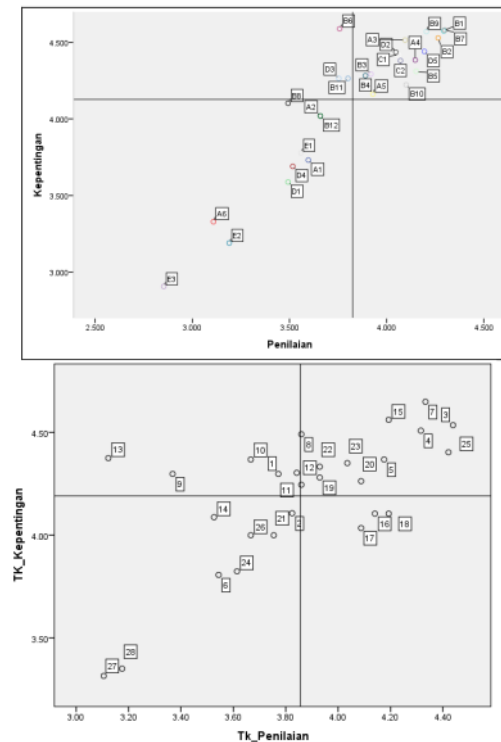


Fig. 1. Importance Level – Scoring for Educational Service Quality

Kano at Qiting et al (2013) categorized the dimensions of service quality into attractive (A), one-dimensional (O), must-be (M), questionable result (Q), reverse (R), indifferent (I), as shown in table 1.

Table 1. Kano Evaluation Table.

Customer Requirements		Dysfunctional				
		Like	Must-be	Neutral	Live with	Dislike
Functional	Like	Q	A	A	A	O
	Must-be	R	I	I	I	M
	Neutral	R	I	I	I	M
	Live with	R	I	I	I	M
	Dislike	R	R	R	R	Q

B10	74	47	14	71	3	0	O
B11	78	42	21	61	5	2	O
B12	75	45	22	62	4	1	O
C1	114	39	14	35	6	1	O
C2	48	24	14	101	20	2	I
D1	45	48	18	89	9	0	A
D2	101	50	7	45	5	1	O
D3	83	36	15	66	6	3	O
D4	39	15	24	70	54	7	I
D5	108	21	13	61	6	0	O
E1	61	27	14	96	10	1	I
E2	24	14	19	123	26	3	I

Using this concept, we resume the results, as shown in table 2.

Table 2. Kano Categories for School A and School B

Dimension (attribute)	O	A	M	I	R	Q	Kano Category
A1	37	38	15	106	10	3	I
A2	56	30	26	81	7	9	O
A3	116	44	13	24	9	3	O
A4	58	60	11	68	9	3	A
A5	62	31	19	78	15	4	O
A6	23	26	9	125	15	11	I
B1	143	23	16	19	6	2	O
B2	96	58	6	41	8	0	O
B3	70	51	13	65	10	0	O
B4	87	50	6	60	6	0	O
B5	70	57	11	62	6	3	O
B6	149	21	13	17	8	1	O
B7	133	34	12	21	7	2	O
B8	58	41	9	95	3	3	O
B9	134	30	11	28	5	1	O

Dimension (attribute)	O	A	M	I	R	Q	Kano Category
A1	16	17	2	16	3	3	A
A2	18	16	4	14	5	0	O
A3	24	14	1	12	4	2	O
A4	16	19	3	14	3	2	A
A5	23	7	4	16	6	1	O
A6	14	12	3	25	2	1	O
B1	32	14	1	5	3	2	O
B2	23	24	0	5	5	0	A
B3	19	20	4	10	4	0	A
B4	28	19	2	3	5	0	O
B5	17	22	2	12	4	0	A
B6	32	13	1	5	4	2	O
B7	20	19	2	12	3	1	O
B8	22	10	5	14	5	1	O
B9	25	20	1	4	5	2	O
B10	14	17	4	15	6	1	A
B11	14	19	2	16	5	1	A

B12	14	23	7	9	3	1	A
C1	22	12	3	16	3	1	O
C2	17	11	2	22	3	2	O
D1	13	21	2	15	5	1	A
D2	19	23	3	7	4	1	A
D3	20	16	4	12	3	2	O
D4	7	9	4	16	18	3	R
D5	24	15	1	14	2	1	O
E1	19	10	3	22	1	2	O
E2	11	7	3	33	1	2	I

There are nineteen one-dimensional educational services quality for school A, and five for school B for the same category. It means the students of the school got the perception that majority of the needs/want related to the learning process are fulfilled.

Using the cartesian diagram in figure 1, we found three dimensions of service in first quadrant (high level of importance, but get lower score), for school A. There are:

- cleanliness of the toilet
- Available of parking area
- Textbook availability

There are five dimensions of service found in first quadrant, for school B:

- Calendar of activities available at the beginning of the school year
- Excellence library
- sport facilities
- extracurricular activities facilities
- Computers adequacy provided in the lab for students

Quantitative data for each dimension of service are shown in table 3 below:

Table 3. Quantitative Data for Importancy and Scoring

	Average	
	Importance Level	Scoring
School A	4,127	3,825
School B	4,192	3,857

Some dimensions of services are plotted in quadrant 1 (three for school A, and five for school B). In this area, the students need/want more improvement. They stated that the dimensions is very important, but the school member (headmaster, teachers, etc.) delivered them in bad services. So, the students gave lower score (lower than the averages of all the dimensions).

#### 4. COMPARISON BETWEEN SCHOOLS

Using Cartesian Diagram and Kano Category of Dimension, we have made the comparison of the implementation of the learning process in school A and school B.

The difference between school A and school B is related to the facilities. Students of school A more concerned for supporting facilities, such as parking areas and the cleanliness of the toilet. Instead, students of school B more concerned for the availability of computer labs, as one of some main facilities related to learning process.

There is a similarity of two schools: the student perception are focused to teacher performance. They are concern to the competencies for teaching, the educational background of their teachers and the preparation for teaching.

#### 5. CONCLUSION

After completed the verification test and validation test, we knew that the twenty-eight questions have represented the Parasuraman's five dimensions of service quality in educational process.

Based on our questionnaire, the teachers are the central of educational process. The teacher's role is a very important factor in the educational process, followed by other supporting facilities.

#### REFERENCES

- Kano, N., Seraku N., Takahashi F. and Tsuji S. (1984). Attractive Quality and Must-be Quality,



Hinshitsu: the Journal of the Japanese Society for Quality Control, pp.39-48.

Qiting, P., Uno, N. And Kubota, Y. (2013), <http://design-cu.jp/iasdr2013/papers/1835-1b.pdf>, Kano Model Analysis of Customer Needs and Satisfaction at the Shanghai Disneyland, accessed at Jan 7, 2017.

Kano, N. (1996), "Guide to TQM in Service Industries".

Saghier, N., Nathan, D., Service Quality Dimensions and Customers' Satisfaction of Banks in Egypt, Proceedings of 20th International Business Research Conference 4-5 April 2013, Dubai, UAE, ISBN: 978-1-922069-22-1.

#### PHOTOS AND INFORMATION

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