

The Analysis of Parent Satisfaction with the School Service Using Kano Methods: The Case Study at The Private School in Yogyakarta, Indonesia

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Abstract—Many factors are determining the parent decides to send their children to a particular school. The purpose of this study is to obtain the satisfaction level of educational quality experienced by the parent. The type of this research is descriptive, explorative analysis with qualitative and quantitative approaches. The qualitative data used are the data of educational experts to determine the attributes of education referring to the National Education Standards using the Delphi method. The quantitative one is data of parents' answers to the questionnaires on the characteristics of education using Kano methods. The instrument used was a questionnaire including 26 items. The subject of this research was 11 Junior High School of Muhammadiyah in Yogyakarta, Indonesia. The sampling technique was stratified random sampling. The sample number is 235 parents selected using stratified random sampling. The result shows that there is a tendency that the quality category of the school is the attractive and one-dimensional category. This tendency implied that the school authority should educate the parent for a better perception of good school criteria.

Keywords—Parent satisfaction, school service, Kano methods

I. INTRODUCTION

Based on the report of The Global Competitiveness Report Indonesia experienced a significant decline in competitiveness by 4 points (from ranking 37 in 2015 to 41 in 2016) to be one of the essential indicators in Indonesia's national management system [1]. Education in Indonesia is currently one of the critical sectors in encouraging an increase in national competitiveness. However, there are various challenges in establishing a quality educational environment. A decrease of 20 points to rank 100 for health and basic education needs a good solution. Besides, there are also problems related to the education gap between regions in Indonesia [2]. Government efforts to build education are carried out with various approaches such as in the education sector funding system, education curriculum, and education system. Achieving these educational goals will be performed if supported by all parties, both government and private education managers.

Dynamic anticipation of change is vital for schools to be able to grow for better sustainably. This change is also an opportunity for school managers to build a superior schooling system that is in line with the expectations of the community, especially parents, while still paying attention to

educational goals nationally. Analysis of the level of satisfaction of parents to send their children to private schools will be an essential basis for education policymaking especially to make a roadmap for the development of superior schools by private schools as part of supporting the improvement of the nation's competitiveness in the aspect of education.

One method for analyzing the level of satisfaction of the quality of education experienced by parents is the Kano Method. This method is relatively simple but can provide an overview of preferences to be the basis for developing quality services in many areas not only for business [10, 11] but also in education [12, 13] and another area [14]. In education, the Kano method is used both at a technical level such as in utilizing an application or at a policy level such as in determining school services. Research at the policy level in schools will be able to encourage the implementation of schools that meet the expectations of parents, graduate users and the wider community [15-17]. However, research that focuses on parental perceptions is still relatively limited. These studies are mostly carried out at the higher education level [18-19] and are relatively lacking at the elementary school level. Many educators see education at the elementary school level as very important to support success in education at a higher level. This study revealed how the Kano method was used to find out the reason for parents sending their children to a particular school. In the case of this study, the level of satisfaction of parents to send their children to private schools will be analyzed later using the results of this study, the level of satisfaction can be determined.

II. KANO METHODS

The Kano method developed by Noriaki Kano from Tokyo Rico University in 1984, is one method that can be used to map customer preferences in obtaining satisfaction with a particular product or service. With this method can be understood the attributes of products or services that can be accepted and will affect consumers [20]. Several strategies can be developed to get better positioning. Ignorance of service attribute categories can lead to a negative image for service managers because they fail to provide services according to service attribute categories that offer more value for parents as education service users.

The concept of quality measurement traditionally assumes that satisfaction is directly proportional to performance, for example, the higher the production of food, customer satisfaction is also higher and vice versa [3, 21]. The concept of two-dimensional quality measures the impact of customer satisfaction on fulfilled conditions and the effect of customer dissatisfaction on terms that are not satisfied [22]. The method that uses the concept is the Kano method. The Kano method is a two-dimensional quality concept, where there is a non-linear relationship between satisfaction and performance of the service [4].

Some of the bases used in the development of the Kano method are quality attributes. These attributes are difficult to see can be understood by categorizing attributes clearly, in service of consumer needs, customer satisfaction is proportional to the maximum service function, attributes of consumer needs are not always included in the category one dimensional, but can enter must be or attractive, attributes of consumer needs can be mapped/ classified through questionnaires aimed at consumers. The attributes of customer needs can be divided into six categories, namely: attractive, one dimensional, must be, indifferent, reverse, and questionable [22].

Attractive or excitement needs is a category where the level of customer satisfaction will increase very high with increasing performance attributes. While the decrease in attribute performance will not cause a reduction in the level of satisfaction. One dimensional or performance needs is a category which if fulfilled it can increase customer satisfaction and will create dissatisfaction if it is not performed. Or in other words, the level of customer satisfaction is linearly related to the performance of the attributes so that the decrease in the performance of attributes will also reduce the level of customer satisfaction. Must be or basic need is a category where customers become dissatisfied if the performance of the attributes concerned is low, but customer satisfaction will not increase far above neutral even though the performance of these attributes is high. This category is a basic need that must be met by service providers to consumers. If the organization wants to improve performance in this category, it will not increase satisfaction, but these attributes must be fulfilled by the company, in other words, these attributes must exist in each product or service so that consumers will not use the services we provide. Indifferent occurs if the presence or absence of services will not affect customer satisfaction. The reverse is the opposite category of the one-dimensional category, namely the degree of consumer satisfaction is higher if the service goes undue, compared to services that run better. Questionable is a condition that sometimes consumers are satisfied or not satisfied if the service is provided or not provided.

Fig. 1 is an illustration of category definitions in the Kano method in two dimensions, linear and non-linear [3]. Category one dimensional and reserve is in the linear dimension, while attractive and must-be fall into the non-linear dimension.

Several benefits can be obtained when education services can classify customer needs by the Kano method. By using this method, managers can prioritize the development of educational services after knowing more about the attributes that exist in the education services provided. For example, the attributes included in the category must be better if not further developed with high investment. This situation is

because these attributes are indeed attributed that must exist. It is better to establish attributes for those who are in the one-dimensional category. When a company can find and meet attractive categories will create a big possibility for differences, namely differentiating the company's service products with competitors.

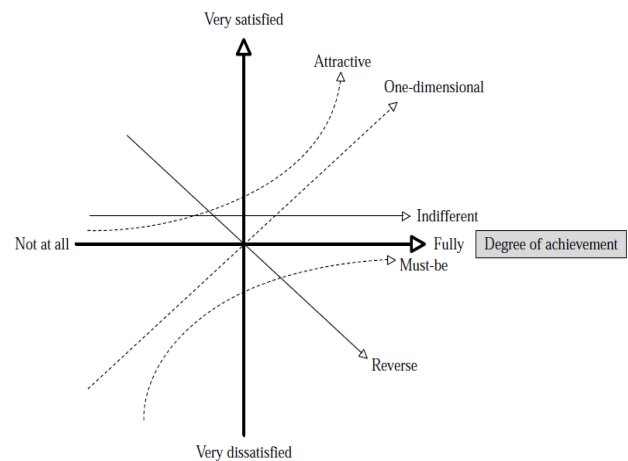


Fig. 1. Kano's Customer Satisfaction Model

There are three stages for measuring service quality using the Kano method. First, identify attributes, which are done by grouping based on customer satisfaction dimensions. From these attributes, pre-questionnaires have been compiled. Second, a pre-questionnaire test to detect which questions are considered unnecessary by consumers. Third, distributing questionnaires used to determine consumer preferences.

In the Kano method, there are two types of questionnaires that are used to determine customer preferences, namely Functional questions, which contain questions about what customers feel if the service attributes are available or functional items, which include what the customer thinks if the service attributes are not fulfilled.

Giving the value in the questionnaire is classified into five types, namely:

- Like, when the service is beneficial for customers, or enjoy the service,
- Expect that means that the service or facility is a must for customers or is a service that must be met by the school,
- Neutral when there is a service or facility that will not affect the customer,
- Giving Tolerance when the customer does not like the service but can accept the condition,
- Dislike, when the customer cannot receive the condition.

The data obtained was used as the basis for determining the attribute categories of each respondent based on the Kano category to classify attributes based on the Kano category. Respondents answer the questionnaire attributes with two choices for each quality. The Kano method has the best validity and high reliability [5].

Data obtained from respondents, on functional questions and dysfunctional questions are translated or classified based

on Kano's theory as shown in Fig. 2. After being decoded, data will be obtained according to the Kano method, namely the classification of respondents' answers in the attractive category, must-be, reserve, one dimensional, questionable, and indifferent.

To determine the Kano category for each attribute, we use Blaut's formula, as follows:

- IF sum of (one dimensional+attractive+must be) HIGHER THEN sum of (indifferent+reverses+questionable) THEN the grade is obtained from the most maximum (one dimensional, attractive, must be),
- IF sum of (one-dimensional+attractive+must be)
- LOWER THEN sum of (indifferent+reverses+questionable) THEN the grade is obtained from the maximum of (indifferent, reverses, questionable).

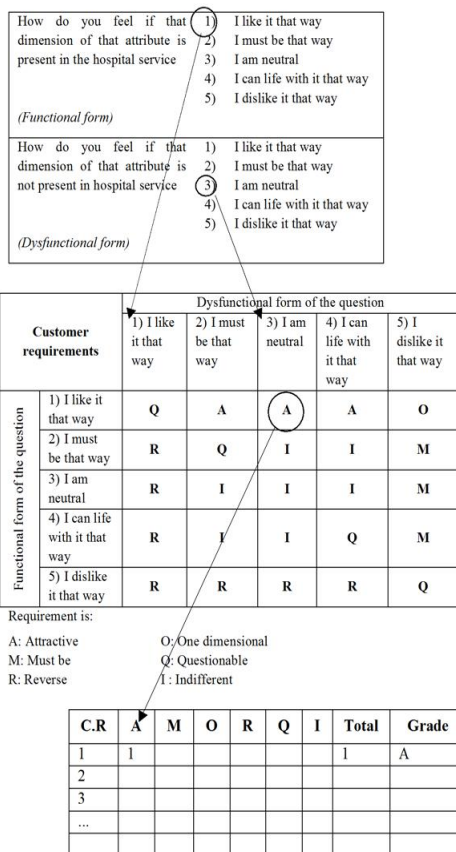


Fig. 2. The classification through the five-level Kano's questionnaire

III. RESEARCH METHOD

A. Research Context

This research was conducted in Muhammadiyah Junior Schools in the city of Yogyakarta in the academic year 2017/2018 in the odd semester. The type of analysis used is descriptive exploratory research with qualitative and quantitative approaches. Qualitative data used are data from education experts (principals, school supervisors, and

lecturers) to determine the educational attributes that refer to the National Education Standards [6] with the Delphi method and data on parental answers to questionnaires on the attributes of education in Muhammadiyah Junior School using the Kano method. Quantitative data are statistics on the satisfaction of parents who choose to send their children to Muhammadiyah Junior School. The subjects in this study were parents of students in Muhammadiyah Junior School, Yogyakarta in the 2017/2018 consisting of 235 students.

B. Data Collection

The data collection method used is the questionnaire. Data obtained from the parents' answers were then translated into Kano models on each questionnaire answer item chosen by the parents of the students. In the preparation of questionnaires using the Kano method point of view, dividing questionnaires into functional questions and dysfunctional questions, so that in compiling the attributes of questionnaire questions also can't be separated from how Kano's method views each specific attribute of educational services that can affect the satisfaction of parents sending their children to private schools. To obtain a questionnaire grid according to the dimensions of education service quality, it was initially carried out by referring to the National Education Standards [7, 8, 9].

The process in preparing the education service questionnaire by using the Delphi analysis technique is by steps namely: developing the Delphi question from the national education standard attributes [6], selecting and contacting expert respondents. In this study involved four expert respondents consisting of one school supervisor, two principals, and one education management lecturer. The experts developed national education standard-based attributes [6] for the first questionnaire. Then, it was given to expert respondents to be filled out, analyzing the questionnaire. This was the first round developing questionnaire and then given back to expert respondents to be filled for second round analyzing questionnaire. The third round developing questionnaire and given back to respondents expert to be filled out, investigating the questionnaire, and preparing the final report on the results of the analysis.

C. Data Analysis

The mapping of available school service attributes following the needs of parents of students can be done by calculating the better value (coefficient of satisfaction) and worse (coefficient of dissatisfaction). Better indicates how much student satisfaction increases if the school provides the program (A and O). Worse means how much-decreased student satisfaction is if the school does not offer the program (O and M). The formula for calculating better and worse is as Formula (1) and (2).

$$better = \frac{A + O}{A + O + M + I} \quad (1)$$

$$worse = \frac{O + M}{A + O + M + I} \times (-1) \quad (2)$$

IV. RESULT

A. School Attributes

From the implementation of the Delphi method that involves teachers, education experts, and parent’s representatives, the attributes that can be used to group school performance are shown as in Table I. From the table it can be seen that there are eight dimensions that are in accordance with national education standards: content (4 items), process (2 items), graduate competence (3 items), educator and education staff (3 items), facilities and infrastructure (4 items), management (4 items), financing (3 items), educational assessment (3 items); total is 26 items.

TABLE I. DIVISION OF DIMENSIONS FOR EACH EDUCATIONAL ATTRIBUTE

No	Service Attributes	Dimension
A1	Schools use the school-based curriculum or curriculum 2013	Standards of content
A2	The school develops syllabus based on the School-based curriculum or Curriculum 2013.	
A3	Schools have adjusted subject indicators with competency standards and essential competencies.	
A4	Syllabus subjects are developed by integrating character education.	
A5	Subjects have a plan for implementing learning by integrating character education outlined from the syllabus.	Standards of process
A6	Schools / Madrasas carry out the learning process according to the learning steps.	
A7	Students gain learning experiences from subjects to analyze natural and social symptoms.	Standards of graduate graduate
A8	Students are given activities that foster and develop an attitude of confidence and responsibility.	
A9	Schools provide programs for students to shape character, foster sportsmanship, and environmental cleanliness.	
A10	Teaching subject teachers according to their educational background.	Standards of educators and education staff
A11	Teachers behave according to religious, legal, social, and applicable regulations.	
A12	The teacher controls the subjects he teaches.	
A13	Schools are in a safe location, avoid potential hazards.	Standards of facilities and infrastructure
A14	Schools are in a convenient location, protected from pollution.	
A15	Schools have a complete infrastructure.	
A16	Schools have classrooms with numbers, sizes, and facilities according to the provisions.	
A17	Schools have a vision, mission, and goals that are socialized to the school community.	Standards of management
A18	Schools have annual work plans and common work plans.	
A19	Schools carry out activities according to the annual work plan.	
A20	Schools carry out curriculum development and learning activities.	
A21	Educational donations or government funds are managed systematically, transparently, efficiently and accountable.	Standards of Financing
A22	Determination of school fees considers the economic abilities of parents.	
A23	Schools have financial management guidelines as the basis for preparing work plans and budgets.	
A24	The teacher provides information about the design and assessment criteria to students.	Standards of educational assessment
A25	The teacher develops assessment instruments and guidelines following the forms and	

No	Service Attributes	Dimension
A26	techniques of evaluation. The teacher evaluates the attitudes and personality of the students as information for the assessment at the end of the semester.	

B. Category of the attribute

From the attributes obtained by the Delphi method as in Table I, a questionnaire was distributed to 235 parents in schools using the stratified random sampling technique. From the results of questionnaires, Table II shows the categories of each item or attribute based on Kano criteria.

TABLE II. DATA FROM THE CALCULATION AND MAPPING OF CATEGORIES IN THE KANO METHOD

Attributes	Q	A	O	R	I	M	Total	Grade
A1	19	104	51	8	42	11	235	A
A2	20	78	60	11	48	18	235	A
A3	29	89	50	2	49	16	235	A
A4	6	60	76	1	63	29	235	O
A5	3	69	64	1	61	37	235	A
A6	3	64	102	0	26	40	235	O
A7	1	69	78	0	50	37	235	O
A8	0	69	126	0	17	23	235	O
A9	0	63	120	1	21	30	235	O
A10	4	67	80	2	47	35	235	O
A11	3	34	163	1	14	20	235	O
A12	26	94	36	20	53	6	235	A
A13	7	43	118	1	29	37	235	O
A14	11	41	110	1	35	37	235	O
A15	9	94	54	2	59	17	235	A
A16	9	88	82	1	40	15	235	A
A17	5	78	89	1	41	21	235	O
A18	16	65	70	3	62	19	235	O
A19	10	61	68	4	66	26	235	O
A20	5	56	90	2	43	39	235	O
A21	5	22	145	1	20	42	235	O
A22	4	36	112	4	37	42	235	O
A23	1	38	101	0	52	43	235	O
A24	0	44	119	1	33	38	235	O
A25	2	51	95	1	47	39	235	O
A26	3	43	114	3	46	26	235	O

The last column of Table II shows that there are only two criteria that appear in the views of parents, namely attractive and one-dimensional. While other attributes do not appear. This result needs to be analyzed further to find out the causes of this trend in parents.

C. Better and Worse Categories

Using Formula (1) and (2), we can calculate the classification of each attribute. Classification of attributes according to the attractive and one-dimensional category can be seen in Table III for Attractive category and Table IV for One-dimensional category.

TABLE III. ATTRIBUTE CLASSIFICATION RESULTS ACCORDING TO ATTRACTIVE CATEGORIES

Attributes	Better	Worse
A1	0.745	-0.298
A2	0.676	-0.382
A3	0.681	-0.324
A5	0.576	-0.437
A12	0.688	-0.222
A15	0.661	-0.317
A16	0.756	-0.431
Average	0,683	-0,344

Attribute (A16) is the highest score for Better category, but (A5) is the lowest one; (A5) also the worst one based on the Table III.

TABLE IV. ATTRIBUTE CLASSIFICATION RESULTS ACCORDING TO ONE DIMENSIONAL CATEGORIES

Attributes	Better	Worse
A4	0.596	-0.461
A6	0.716	-0.612
A7	0.628	-0.491
A8	0.830	-0.634
A9	0.782	-0.641
A10	0.642	-0.502
A11	0.853	-0.792
A13	0.709	-0.683
A14	0.677	-0.659
A17	0.729	-0.480
A18	0.625	-0.412
A19	0.584	-0.425
A20	0.640	-0.566
A21	0.729	-0.817
A22	0.652	-0.678
A23	0.594	-0.615
A24	0.697	-0.671
A25	0.629	-0.578
A26	0.686	-0.611
Average	0,684	-0,596

The function graph of parents' satisfaction in sending their children to Muhammadiyah schools using the Kano method can be seen in Fig. 3.

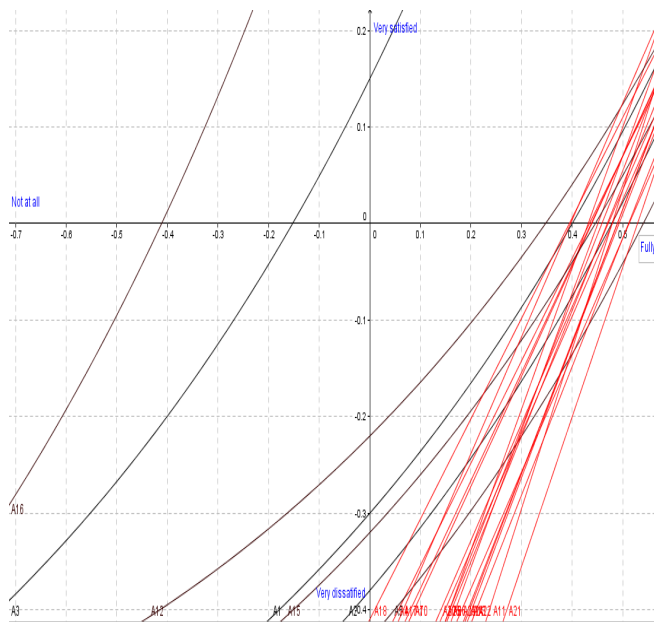


Fig. 3. The graph of parental satisfaction functions

From Fig. 3 it can be seen that there is a tendency for attribute groupings as also shown in the results of calculations in Table II. More analysis is needed why the reasons for parents only on specific criteria.

V. DISCUSSION

The quality attributes of education used to measure the level of satisfaction of parents sending their children to

private schools consist of 26 items which are included in the dimensions of content standards, process standards, graduate competency standards, standards of educators and education staff, standard facilities and infrastructure, management standards, financing standards, and educational assessment standards. These attributes are following national education standards [7-9] even though the number of items obtained is not the same as the item on school accreditation [6].

The Muhammadiyah Junior School quality category based on the educational quality attributes of this study is classified into two categories, namely Attractive category (if educational services are available or available, parents will be happy to send their children to Muhammadiyah schools, but if the service is unavailable or not) the old does not matter too much) and the one dimensional category (if educational services are available or there will make parents prefer sending their children to Muhammadiyah schools, but if there is no education service then parents are more reluctant to send their children to Muhammadiyah schools). These findings indicate that not all categories of Kano arise in the reason parents send their children to a particular school. This finding is possible for several reasons [19, 21].

In Table II it can be seen that not all attributes of the eight of national education standards are in the attractive category, there are only standard contents, processes, educators and education staff as well as facilities and infrastructure. For example, the attribute of the content standard is the use of the 2013 Curriculum in schools and the development of syllabus from the curriculum. The implementation of the 2013 Curriculum is considered by parents to be an attractive attribute and can improve the performance of attributes. At the standard of teaching staff, some teachers master the subjects that can be categorized as attractive.

There are critical attributes that are predicted to be in the attractive or must be the category in the one-dimensional category. For example, a syllabus that develops characters and teachers who teach according to their educational background and behave according to norms. Graduates' competency standards that shape character, activities that foster self-confidence and responsibility also fall into the one-dimensional category.

Parents feel that the existence of character education, activities that foster confidence and responsibility are attributes that if there are satisfactory and if there is none will give dissatisfaction. However, this shows that parents only follow what is in school, do not see that the development of education today requires things such as character, confidence, and training are responsible for being applied in the school environment.

The curve form of the equation made for each attribute of the eight standards in Fig. 3 shows that each attribute curve has no distant difference and it can be seen that the distance between one curve and the other is very close. The curve of attractive categorical attributes has a point that is not too far from the one-dimensional category attribute curve. The mapping results show that respondents have quite the same satisfaction between each attribute.

Comparison between attributes into the category in the Kano model, it was found that more attributes belong to the one-dimensional category of the overall qualities. No characteristics that appear in the category of must be,

indifferent, reverse, and questionable. Based on the results of data processing, respondents indicate that they tend to follow whatever the school determines for their children's education. This result implies that it is possible that parents are relatively ignorant about some national education policies. Parents' perceptions of good schooling are still limited to general trends about favorite schools; not yet on real needs in education. These results need to be of concern to education managers to carry out promotions or outreach to parents and the public about the criteria for good schools.

VI. CONCLUSION

The education quality category based on the quality attributes of the results of this study is classified into two categories, namely the attractive category and the one-dimensional category. The quality attributes of education used for parental preference maps obtained from the national standards of Indonesian education where there are 26 attributes of eight education standards namely content standards, process standards, graduate competency standards, education and labor standards education, standards of facilities and infrastructure, management standards, financing standards, and educational assessment standards. The quality categories of Muhammadiyah schools based on the quality attributes of education developed are in the attractive and one-dimensional categories. The number of attributes in the attractive category is seven and the one-dimensional category is 19 attributes. Schools need to do better promotion and introduction to parents. This action is expected to be able to increase parents' understanding of the education process held by schools.

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