Conference Title : Emerging Trends In Academic Research (ETAR – 2014)

Study Tittle : The Analysis of Influential Attributes on Students Satisfaction in Entrepreneurship Course Using Kano Model (Case Study in Business Administration Major in Telkom University)

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ABSTRACT

The purpose of this research is to map attributes of entrepreneurship courses at Business Administration Studies Program (in University of Telkom) into the Kano Model category, and also to enhance a comprehensive calculation of CS-Coefficient to determine how influential each attribute on student satisfaction and dissatisfaction.

Based on Stephen Isaac & Willian B. Mitchael table with significant level 95% and 190 students as the population of this research, so the sample of this research are 123 students. Simple random sampling as part of probability sampling was used by the writer in this research.

CS-Coefficient calculation results show that the attributes with most influences on student satisfaction is suitable, adequate, and up-to-date aids in the learning process for entrepreneurial practices (e.g. business simulations) with better values of 0.7, the results also indicate that the attribute with most influence on student dissatisfaction is appropriate physical environment for the classroom (light, ventilation, chairs, voices, etc.) with worse values of - 0.7.

Keywords: Student Satisfaction, Quality of Entrepreneurship Course, Kano Model

1. INTRODUCTION

Universities have a major role to instill entrepreneurship spirit in students, so that graduates are not only experts in an academic field, but also be able to contribute to the economy (e.g. solving unemployment issues and bringing new innovative technologies to the market). Universities in Indonesia, both public and private ones are offering entrepreneurship courses, each of them are competing to be the best and most attractive to many prospective students.

Business Administration Major of Telkom University also offer entrepreneurship course. The course is divided into two concerned courses with total 6 credit hours. Hopefully the project would create a sustainable enterprise embedded in the Telkom University community that promotes and supports innovation, entrepreneurial activity, entrepreneurial approaches to problem solving, and provides a value-added contribution to the economic development of Indonesia

This study was conducted to map any attributes that affect student satisfaction in

entrepreneurship courses at the Business Administration Major of Telkom University in 2013/2014, with a sample population of students in the for the year who completed 2 entrepreneurship courses with total 6 credit hours. This study refers to a previous study with a similar theme that successfully mapped the factors that may affect students' satisfaction [1].

Research Questions:

1. How influential each service attribute of Entrepreneurship courses at Business Administration Major in University of Telkom on the students satisfaction and dissatisfaction in 2013/2014.
2. Which qualities of service attributes are most influential (dominant) on student satisfaction and dissatisfaction in Entrepreneurship course that could be understandable by a view from in scatter plot or Kano Model's attributes diagram.

2. LITERATURE REVIEW

According to the previous study [1], variables with most influences on student satisfaction are the expertise of teachers, courses offered, learning environment and classroom facilities, assessment methods, self-motivation, student learning styles, instructor knowledge, instructor feedback, student interaction, and course structure. These attributes are considered to have a correlation significantly to student satisfaction. Business Administration Major of Telkom University also offer entrepreneurship course. The course is divided into two concerned courses with total 6 credit hours. Hopefully the project would create a sustainable enterprise embedded in the Telkom University community that promotes and supports innovation, entrepreneurial activity, entrepreneurial approaches to problem solving, and provides a value-added contribution to the economic development of Indonesia.

The overall impression on the university, teacher expertise and their interest in the subjects they teach, the quality and ease of access to the facilities of IT (Information Technology), and career opportunities for students are also the most decisive factor in student satisfaction [3,4,7,9]. Research conducted using the model of satisfaction and Herzberg's theory to examine the attributes that determine student satisfaction towards educational performance found that faculty and classes are the key factors in determining the quality of the experience gained during the lecture students, the attributes will also affect the satisfaction [6].

Another study at a university in Spain with a similar theme also concluded that the attribute 'teaching style', 'learning method' and 'administrative regulations' were the key elements of satisfaction that will lead students into loyalty [10]. Besides, the reputation of the college was also influential to the satisfaction of student [11].

A study conducted in Master Degree program of educational Psychology in State Universities of Tehran using 40 indicators analyzed by T-Test Correlated to produce 27 indicators that were subsequently analyzed by the Kano model to determine the effect of these indicators to further student satisfaction [1].

All of the study above confirms that some attributes offered by each college have influences on the students' satisfaction. These factors need to be studied to meet the needs of students, to analyze what attributes lead increasing satisfaction and what attributes do the opposite.

This study focuses on the analysis of student satisfaction towards Business Administration Major at the University of Telkom in 2013/2014. The study refers to the research conducted by Arefi et al. (2012) at the University of Tehran in identifying the attributes that affect student satisfaction with adjustments on several variables.

3. RESEARCH MODEL

This research was using Spearman correlation to check validity of the variables used and Chronbach's alpha coefficient to check reliability of valid variables. After checking validity and reliability of variables, those variables will analyzed by Kano Model.

KANO MODEL

Kano Model is an instrument to perceive the voice of customer in order to influence the customer satisfaction, Kano et al develop this model in order to categorize the attributes of the products or services based on how well those are able to satisfy customer needs . Kano model classifies the attributes of products (or services) into six categories as follows [15] (see fig. 1):

a. Attractive/excitement need

   In this category, consumers will feel more satisfied with the improved performance attributes. However, the decline in performance attributes will not cause a decrease in the level of satisfaction.

b. One Dimensional

   Customer satisfaction will depend on the fulfillment of this category. The level of customer satisfaction is linearly related to the performance attributes. Increasing performance make consumer more satisfied, and decreasing performance make consumer less satisfied.

c. Must Be/Basic Needs

   In this category, the presence of a service will not affect the level of satisfaction, while the absence of these things will greatly reduce customer satisfaction. This category is a basic need that must be provided by the service providers.

 d. Indifferent

    Services in this category couldn't really influence the level of consumer satisfaction, neither the presence nor the absence of them.

e.   Reverse

   This category is the opposite of the one-dimensional category. The presence of attributes will lead to consumer dissatisfaction but the absence can cause increase the level of satisfaction.

 f. Questionable

    Services in this category are the ones with questionable urgency. Consumers consider services in this category not really matter to the level of satisfaction.
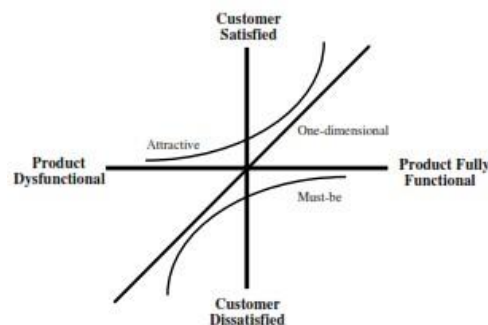
Fig. 1. The Kano Diagram (Boger et al, 1993, 4)

From Kano's six category, 'must-be', 'one-dimensional', and 'attractive' category are those with the biggest influences on the level of customer satisfaction. The order of the most influential category is M> O> A> I. So, in order to increase the satisfaction level, the priority can adjust the sequence, with the highest priority embedded in the category of 'must-be'.

Data collection in this study was conducted by surveying respondents with Kano's 'two-dimensional' questionnaire. In this questionnaire, respondents are analyzed using a pair of functional (positive) and dysfunctional (negative) questions. There are 5 points or answers for every question: like, must-be, neutral, live with and dislike (see table 1.)

Table 1. An Example of Kano's Questionnaires
(Arefi et al, 2012, 349)

	Questions	Like	Must be	Neutral	Live with	Dislike
Functional	How do you feel if the course material is up-to-date?					
Dysfunctional	How do you feel if the course material is not up-to-date?					

Then, the respondents' answer will be classified into 6 categories of Kano Model. [2,5,12,14,15]. Customer requirements are A (Attractive), M (Must-be), R (Reverse), O (One-Dimensional), Q (Questionable Result) and I (Indifferent), as see on table 2. In Kano Model, the most frequent selected indicator based on respondent's answer is used as the final classification of customer requirements [5].

Table 2. Kano Evaluation Table (Bober et al, 1993, 6)

Customer Requirement		Dysfunctional				
		1. Like	2. Must- be	3. Neutral	4. Live with	5. Dis- like
Functional	1. Like	Q	A	A	A	O
	2. Must-be	R	I	I	I	M
	3. Neutral	R	I	I	I	M
	4. Live with	R	I	I	I	M
	5. Dis- like	R	R	R	R	O

Weighting in choice answers given by respondents in Kano Model has the following rule [2], see table 1.:

Functional Questions:
1	Dislike	= -2
2	Live with	= -1
3	Neutral	= 0

Dysfunctional Questions:
1	Dislike	= 4
2	Live with	= 2
3	Neutral	= 0

| 4 | Must-be | = 2 | 4 | Must-be | = -1 |
| 5 | Like | = 4 | 5 | Like | = -2 |

Overall answer to the questionnaire from each respondent based on functional and dysfunctional questions written in Table 3. Table 3 illustrates the categories of attributes based on the answers of each respondent.

Table 3. Kano's Category for Each Attributes From Respondents' Answer (Wijaya, 2011, 164)

	Attributes						
	1	2	3	4	5	…	…
Respondent 1							
Respondent 2							
Respondent ….							

The final classification of an attribute is determined based on the highest number of respondents. Table 4 shows the tabulation of all respondents' answers and final classification of each attribute.

Table 4. Example of Responses Tabulation for Each Customer Requirement in Kano Qestionnaires (Bober et al, 1993, 8)

C.R	A	M	O	R	Q	I	Total	Grade
1.	1	1	21				23	O
2.		22			1		23	M
3.	13		5			5	23	A
…	6	1	4	1		11	23	I
…	1	9	6	1		6	23	M
…	7		2	3	1	10	23	I

CS-COEFFICIENT

After learning the categories of each attribute, the authors map each of these attributes by using the calculation of customer satisfaction coefficient (CS-Coefficient) in order to determine the value of an attribute good and bad.

Calculations using the formula CS-Coefficient or Better-Worse is used to determine which attributes are most influential or dominant on satisfaction and consumer dissatisfaction. Better value will be achieved by increasing the response attribute 'attractive' and 'one-dimensional', then divide it by the total number of responses 'attractive', 'one-dimensional', 'must - be', and 'indifferent'. Worse value obtained by adding the attribute response 'must-be' and 'one-dimensional', and then dividing by the total number of responses attribute 'attractive', 'one-dimensional', 'must-be' and 'indifferent' and then put a minus sign before answer. Here is the formula:

$$\text{Better} = \frac{A+O}{A+O+M+I} \quad \text{and} \quad \text{Worse} = \frac{O+M}{A+O+M+I} \qquad (1)$$

The coefficients for customer satisfaction (better) have the results between 0 to 1 and the closer to 1 the higher its influence on consumer satisfaction. If it is closer to zero (0) means the lower its influence on customer satisfaction. As for consumer dissatisfaction coefficient (worse) the result are between 0 and -1. A value that closer to -1 indicates a strong influence of these attributes on consumer dissatisfaction;

meanwhile a value approaching 0 indicates that the attribute has a lesser effect on consumer dissatisfaction. The course that could be understandable by a view from in scatter plot or Kano Model's attributes diagram, see Fig. 2.
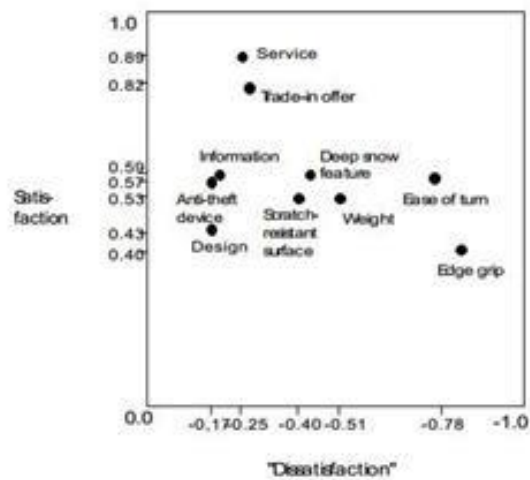

Fig. 2. An example of Kano Model Scatterpot based on CS-Coeffiecient
(Sauerwein, et al. 1991, 11)

4. DATA ANALYSIS

This study use almost the same operational variables from previous study conducted Arefi et al in 2012. Some adjustments to the variable performed to make it more relevant to the object of research. Using the Spearman correlation coefficient performed validation test.

Validity test performed on both functional and dysfunctional question, using statistic software, SPSS 21.0 by comparing r value of Spearman table with sum of r from each attributes R value table for 30 respondents and a significance level of 5% is 0.364. 20 attributes are considered valid after passing thru the validity test by Spearman correlation. The valid attributes sequentially analyzed using Kano Model. Using the Kano Model will use these attributes as a valid reference attributes for analysis.

The reliability test was conducted using Cronbach's alpha analysis test. Attributes that will be analyzed by researchers determined reliable if the results of Cronbach's alpha > 0.60 [13]. Reliability that is less than 0.6 is considered not good. If it's more than 0.6 and even close to 1, the attributes considered good.

Through the validity test, 20 attributes are considered reliable as the test results using SPSS showed r values that higher than 0.6. Reliability test was also performed for both Functional and Dysfunctional questions. Cronbach's Alpha value for Functional questions is 0.852 and the Cronbach's Alpha value for Dysfunctional questions is 0.850. See Table 5 that showed the result of the validity test using Spearman Correlation.

The results of the analysis of 20 attributes using the Kano model classified 4 attributes into the category of 'must-be', 8 attributes into a one-dimensional category, 3 attributes into attractive category, and 5 attributes into indifferent category as seen on Table 6.

Table 6. Validity Test Using Spearman Correlation

NO	ATTRI-BUTES	RESULT		SUMMARY
		FUNCTIONAL	DYSFUNCTIONAL	
1	Existence of more scientific courses during the program	-0.035	0.289	Invalid
2	Presence of incentives and facilities to improve educational and research activities of students (e.g. providing coupons for book, credits for duplication, etc.)	0.583	0.464	Valid
3	Up-to-date material and their conformity to modern scientific findings	0.390	0.659	Valid
4	Appropriate environment for Entrepreneurial Lab and business simulation lab (light, ventilation, chairs, voices, etc.)	0.211	0.261	Invalid
5	Appropriate environment for the university site (light, ventilation, chairs, voices, etc.)	0.214	0.392	Invalid
6	Acquisition of IT skills by the students.	0.398	0.439	Valid
7	Appropriate environment for the library (light, ventilation, chairs, voices, etc.)	0.314	0.269	Invalid
8	Existence of more elective courses during the program	0.485	0.419	Valid
9	Appropriate material for preparing the students to cope with their problems in life and to make proper decisions	0.270	0.310	Invalid
10	Accepting criticisms (for professors)	0.535	0.486	Valid
11	The ability of professors in motivatin	0.383	0.296	Invalid

	g the students about subject matters			

12	Appropriate physical environment for the classroom (light, ventilation, chairs, voices, etc.)	0.745	0.484	Valid
13	Friendly communication of professors with students	0.532	0.634	Valid
14	The ability of professor in conveying the materials	0.486	0.080	Invalid
15	Enabling the students understand how to learn not what to learn	0.442	0.306	Invalid
16	Transparency of assessment standards at the very beginning of the semester	0.351	0.351	Invalid
17	Encouraging the students to be involved in the teaching-learning process	0.492	0.451	Valid
18	Specifying sufficient time to perceive a subject matter	0.494	-0.064	Invalid
19	Allocating a major portion of the final score to student activities during the semester (process-oriented assessment)	0.329	0.322	Invalid
20	The professor's interest in answering the student's questions	0.333	0.290	Invalid
21	Enabling the students to carry out research studies about the topics of Entrepreneurship	0.439	0.188	Invalid
22	Enabling students to teach the courses of Entrepreneurship	0.700	0.567	Valid
23	Horizontal order and coordination of courses (course materials) during the program	0.311	0.304	Invalid
24	Coordination between the content of exam questions and the emphasis of teacher on the taught subjects	0.635	0.463	Valid

25	Allocation of a portion of exam score to practical activities such as research studies, etc.	0.451	0.369	Valid
26	Considering an average level of difficulty for course materials (neither so simple nor so difficult)	0.249	0.047	Invalid
27	Developmental evaluation (mid-term exams)	0.131	0.255	Invalid
28	Dynamic role of professor in conveying the subject matters	0.495	0.270	Invalid
29	Appropriate area of classroom for the number of students (physical per capita)	0.396	0.434	Valid
30	Having a certain curriculum (for professors)	0.420	0.419	Valid
31	Suitable and up-to-date mental measurement tools in the Entrepreneurship lab or business simulation site	0.714	0.613	Valid
32	Observing consistency for the content of the courses	0.425	0.522	Valid
33	Familiarizing the students with the ways for improving learning processes	0.220	0.244	Invalid
34	Enabling students to properly use educational tools in learning entrepreneurship course	0.570	0.576	Valid
35	Acquisition of required knowledge and skills about the principles and fundamentals of entrepreneurship as a science	0.557	0.402	Valid
36	Providing feedback for the evaluation of educational progress of the students	0.616	0.515	Valid
37	Encouraging the students to think	0.641	0.384	Valid
38	Observing the order and discipline in entering and leaving the classroom (by the professor)	0.538	0.368	Valid
39	Vertical order and coordination of courses	0.433	0.345	Invalid

	(materials) during the program					to the final exam			
40	Allocation of a major portion of the final score	- 0.091	- 0.218	Invalid					

Table 7 shows the classification of 20 attributes in the Kano model categories are sorted by the highest worse value. CS-Coefficient calculation results show that the attributes with most influences on student satisfaction is suitable, adequate, and up-to- date aids in the learning process for entrepreneurial practices (e.g. business simulations) with better values of 0.7, the results also indicate that the attribute with most influence on student dissatisfaction is appropriate physical environment for the classroom (light, ventilation, chairs, voices, etc.) with worse values of -0.7.

Table 7. The Category of Each Attribute and its CS-Coeffient Value

Attributes	A	M	O	R	Q	I	TOT.	Category	Better	Worse
1	24	39	18	-	2	40	123	I	0,35	-0,47
2	17	45	26	2	1	32	123	M	0,36	-0,6
3	35	23	42	-	-	23	123	O	0,63	-0,53
4	24	29	28	3	1	38	123	I	0,44	-0,48
5	24	36	41	-	-	22	123	O	0,53	-0,63
6	17	41	45	-	-	20	123	O	0,5	-0,7
7	26	29	50	-	-	18	123	O	0,62	-0,64
8	30	21	41	1	-	30	123	O	0,58	-0,51
9	40	20	19	1	-	43	123	A	0,48	-0,32
10	17	48	22	-	1	35	123	M	0,32	-0,57
11	28	18	26	4	3	44	123	I	0,46	-0,38
12	10	50	32	1	-	30	123	M	0,34	-0,67
13	17	47	27	-	-	32	123	M	0,36	-0,6
14	51	17	34	2	-	19	123	A	0,7	-0,42
15	19	25	14	4	-	61	123	I	0,28	-0,33
16	44	18	19	1	1	40	123	A	0,52	-0,3
17	25	35	36	1	-	26	123	O	0,49	-0,58
18	31	28	40	-	-	24	123	O	0,58	-0,55
19	21	24	51	-	1	26	123	O	0,59	- 0, 61
20	15	14	22	3	-	69	123	I	0,31	-0,3
Mean									0.472	-504

Calculations based on the model of Kano produce the final classification of each service attribute. Furthermore, the CS-Coefficient calculation is done to perceive how influential each attributes to student satisfaction. The scatter plot of Kano Model in fig. 3 shows the mapping of attributes according to the classification categories in the Kano model, calculated using CS-Coefficient. The X-axis represents the worse value, while the Y-axis represents the better value. Horizontal and vertical line which divide

the diagram into a quadrant taken from an average of better and worse value.
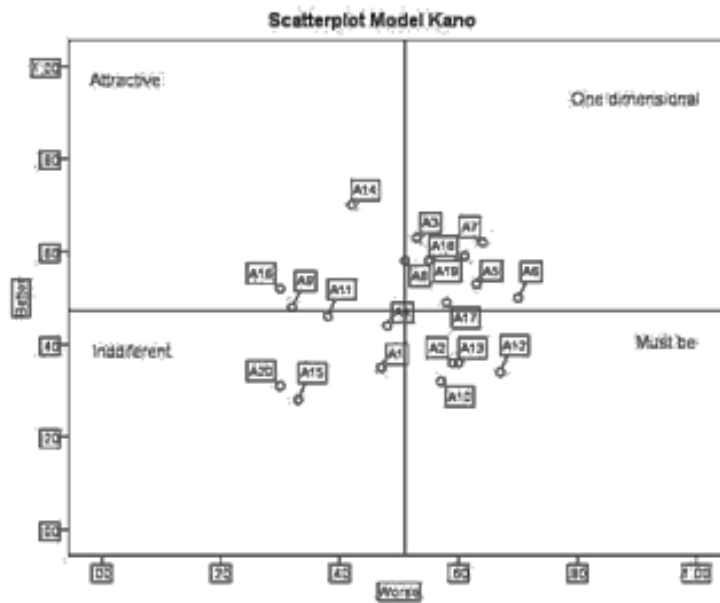

Fig. 3. Scatterplot Model Kano of Influential attributes on Students Satisfaction in
Entrepreneurship Course Using Kano Model

Here is the classification of 20 influential attributes in Kano Model on student
satisfaction in Entrepreneurship Course at Business Administration Program at
Telkom University (see table 8).

Table 8. Clasification of 20 Attributes

NO	KANO MODEL'S CATEGORIES								
	MUST-BE	ONE-DIMEN-SION	ATT-RAC-TIVE	INDIF-FE-RENT		(physical per capita)	voices, etc.)	business simulation site	
1	Appropriate area of classroom for the number of students	Appropriate physical environment for the classroom (light, ventilation, chairs,	Suitable and up-to-date mental measurement tools in the Entrepreneurship lab or	Existence of more elective courses during the program	2	Having a certain curriculum (for professors)	Friendly communication of professors with students	Enabling students to teach the courses of Entrepreneurship	Presence of incentives and facilities to improve

scientific findings			educational & research activities of students (e.g. providing coupons for book, credits for duplication)	
3 Up-to-date material and their conformity to modern scientific findings	Accepting criticisms (for professors)	Enabling students to properly use educational tools in learning entrepreneurship course	Allocation of a portion of exam score to practical activities such as research studies, etc	
4 Coordination between the content of exam questions and the emphasis of teacher on the taught subjects	Encouraging the students to think		Observing consistency for the content of the courses	

5		Acquisition of required knowledge and skills about the principles and fundamentals of entrepreneurship as a science		Observing the order and discipline in entering and leaving the classroom (by the professor)
6		Providing feedback to increase student's competence's progress.		
7		Acquisition of IT skills by the Student		
8		Encouraging the students to be involved in the teaching-learning process		

5. CONCLUSION

The main purpose of this study is to identify the basic needs of students as consumers of Telkom University services. By Kano models, researchers expect to be able to capture the level of satisfaction and which attributes that have the biggest influence on student satisfaction.

Management to improve the performance of each attribute in order to increase student satisfaction also uses the final results of this study. Attribute with the lowest critical point or one with the highest worst value is the top priority for management to handle with care.

Finally, this kind of Kano Model analysis could be a reference for management to advertise more attributes, which are really matters from customers' perspective. In this case hopefully Telkom University could maintain and even increase the level of students' satisfaction by fulfilling their requirements based on Kano Model.

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