

International Conference on Design and Concurrent Engineering 2012 (IDECON 2012)

October 15–16, 2012
Melaka, Malaysia

*Manufacturing Transformation towards Global
Sustainability*

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The Measurement of Herzberg' Employees Satisfaction using Kano Method

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Abstract – This study is focused to how measure and find out the employees satisfaction. Using Kano method and Likert scale which is developed in the questionnaire based on Herzberg theory related to Hygiene and Motivator factors, the results data of survey show inconsistency to each others. To find out what the elements for improvement priorities required by company, this study therefore proposes the Kano Manipulating Graph. This graph is generated based on Kano method related to quality attributes. The graphs show that the elements of Herzberg's Hygiene factors related to employees satisfaction can be constructed in quadrant of the Dissatisfaction (DS) high and Not-Satisfaction (CS) high toward Dysfunctional (DF) and Not-Functional (F) high. In this study, the element of Hygiene factors related to supervisory work and activities for employees' consultancy is the main improvement factor that should be taken immediately by company as a first priority.

Keywords – Hygiene, Motivator, Satisfaction, Kano, KMG.

I. INTRODUCTION

Nowadays, in highly competitive markets, there are varieties factors contribute to the successful of the company to survive in the market. One of the factors is an organization's need to provide goods and services in order to satisfy the customer and make them as loyal customers. This is due to when the customers are satisfied, they are more likely to return. While dissatisfied, the customers are more likely to go elsewhere. In this perspective, the retention of very loyal customer is a key to organizational survival, besides the quality and price factors that should be considered in attracting customer to buy our product [1].

Based on this reason, the internal customer (as a one of the importance asset to organization) should be competitive to maintain the market. First, the company should therefore emphasize their attention on the internal dynamics of the organization and recognize what and how to meet the requirements of the internal customer as important as to meet the needs of the external customer [2]. This is due to the problems caused by the employees are not satisfied with their job will be reflected to the product quality problems [3]. Second, Oakland and Oakland [4] stressed that "for an organization to be truly effective, every single part must work properly together". This is due to the quality service delivered to external customer is often determined by the quality of service that internal customer (employees) provided [5].

Hence, the importance of employees in dealing with the external customer, recognizing that employee's satisfaction

and support of the overall marketing strategy were essential for external customer satisfaction [6,7]. On this, the satisfying of the external customer is greatly depending on a smooth running of process approaches to successfully complete a customer transaction [8], while the internal problem is related to the internal customers or the employees' dissatisfaction in the working environment with intrinsic and extrinsic factors [9]. This is supported by Alhemoud [10] in the case of banking service in Kuwait, where the customer satisfaction is resulted from any dimension whether or not it is quality related and its judgment may arise from non-quality issues (e.g. needs, equity, and perceptions of "fairness"). Briefly, there is a positive linear relationship between staff satisfaction, service quality and customer satisfaction leading to profitability [11,12].

However, Kumar et al., [13] argued that is not clearly stated to differentiate the service quality construct distinguishing between functional service quality (FSQ) which means doing things nicely and technical service quality (TSQ) as doing things right, although towards the external customer, it is means related to the service forms and ways provided by company and their employees. While the internal, it means to employee satisfaction towards working environment, company policy and strategy in providing a better service to customers. This is due to, through service quality required to improve customer satisfaction, many service industries should pay the greater attention to service quality and customer satisfaction as the outcome (technical quality) rather than simply addressing service quality from a functional perspective [13,14, 15]. In addition, Lusch et al. [16] stated that internal customers may have little or no choice, even though the internal customers often can decide not to comply with prescribed procedures or standards, or they can choose whether or how to cooperate.

However, while the concept of internal service makes intuitive sense, according to Hallowell [11] and Stanley & Wisner [17], there little theoretical or empirical work regarding the impact of internal customer service existed. This is due to the concept of internal customer service used reflects the character of attitudes that people have toward one another and the way people serve each other inside the organization [18]. Thus, internal customer service is viewed as a two way exchange process between individuals in different functional departments of a firm in which the provider is charged with responding to the needs of their

internal customer. On this, the improvements in internal service quality will result the improvement of the external service quality [18,19]. An instance, the involvement of upper management is as crucial for every quality initiative, project, or program [20] so that the employees will provide good service if they are taken care by their employer [5] which according to Harter et al., [19], they will improve organizational performance.

Based on this reason, this study is therefore carried out to analyze the employee satisfaction through Kano model and Herzberg's Theory.

II. LITERATURE REVIEW

Job satisfaction is how employees feel about different aspect of their job. Graham and Messner [21, 22] defined job satisfaction as 'the measurement of one's total feelings and attitudes towards one's job. Job satisfaction can be measured by simply proposing a holistic question whether an individual is satisfied or not [9]. According to Hoonakker et al., [23], job factors can influence attitudes, which in turn, can influence turnover intention. Here, the effect of mood on the job is the important components of job attitudes and potentially important predictors of some job behaviors. Job attitudes often correlate more strongly with specific job behaviors than social attitudes correlate with specific behaviors [24]. This is due to, according to Saari and Judge [25], the employees have attitudes or viewpoints about many aspects of their jobs, their careers, and their organization.

Furthermore, since the study of the relationship between job satisfaction and job performance has a controversial history, researchers began taking a critical look at the notion that a "happy worker is a productive worker." [25]. Most of the earlier reviews of the literature suggested a weak and somewhat inconsistent relationship between job satisfaction and performance. On this, Organ [26] suggests that the failure to find a strong relationship between job satisfaction and performance is due to the narrow means often used to define job performance. In addition, the relationship between job satisfaction and performance was found to be even higher for complex (e.g., professional) jobs than for less complex jobs. Thus, it does appear that job satisfaction is, in fact, predictive of performance, and the relationship is even stronger for professional jobs. By continuing to take actions in addressing low job satisfaction is not only important for organizational effectiveness, but by not doing so, organizations can cause spillover of employees' low job satisfaction into their life satisfaction and well-being. It is because, if the employees satisfied with their job, they become happier and the product that produce or service that given to the customer can fulfill customer requirements.

A. Herzberg Theory

The factors that cause job satisfaction will different with the factors that cause the job dissatisfaction. To discover the

things that can make people motivated and satisfied job are different from that make them dissatisfied [27]. Two factors that can influence individual performance are competence and commitment. Competence is a function of knowledge and skills that can be gained from education, training or experience. Commitment is a combination of confidence and motivation. The individual is satisfied if intrinsically and extrinsically rewarded. The employee intrinsically rewarded if s/he perceives that individual performance resulted from the effort expended is important, interesting, challenging, and stretching. On this, Herzberg et al., [28,29] approached to hygiene factors as "job content" that to lead to job dissatisfaction such as:

- i) Company Policies & Administration: The feelings about the adequacy or inadequacy of company organization and management. This includes poor communications, lack of delegated authority, policies, procedures, and rules.
- ii) Supervision: The competency or technical ability of the supervisor. This includes the supervisors' willingness to teach or delegate authority, fairness, and job knowledge.
- iii) Interpersonal Relations: The relationships between the worker and his or her superiors, subordinates, and peers. This includes both job related interactions and social interactions within the work environment.
- iv) Working Conditions: Factors that involve the physical environment of the job: amount of work, facilities for performing work, light, tools, temperature, space, ventilation, and general appearance of the work place.
- v) Job Security: The employee's job tenure and/or the company's stability or instability objective signs of the presence or absence of job security, not the feelings of security.
- vi) Salary: This includes all forms of compensation and focuses on wage or salary increases or unfulfilled expectation of increases.

While motivational factors related to where workers do not tend to be dissatisfied when these factors are not present on the job, such as:

- i) Growth: This includes actual learning of new skills, with greater possibility of advancement within the current occupational specialty as well as personal growth.
- ii) Work Itself: The actual content of the job and its positive or negative effect upon the employee whether the job is characterized as interesting or boring, varied or routine, creative or stultifying, excessively easy or excessively difficult, challenging or non-demanding.
- iii) Responsibility: This includes both the responsibility and authority in relation to the job. Responsibility refers to the employee's control over his or her own job or being given

the responsibility for the work of others. Gaps between responsibility and authority are considered under the company policies and administration factor.

- iv) Achievement: This includes the personal satisfaction of completing a job, solving problems, and seeing the results of one's efforts.
- v) Advancement: The actual change in upward status in the company. Increased opportunity changes with no increase in status are considered under responsibility.
- vi) Recognition: This is the recognition by others for a job well done or personal accomplishment.

On this, workers who are "not satisfied" do not tend to restrict productivity, they just do not get involve in their job or put forth the extra effort to do a good job. Workers who are "satisfied" put forth that extra effort and productivity increases.

B. Kano Method

The Kano model offers some insight into the product attributes perceived to be important to customers. Kano's model is employed as a starting point of the proposed quantitative analysis that involves the conducting of preliminary study, developing, and administering the Kano questionnaire. On this method, the most frequent observations of the sample set of responses are considered as the final Kano category for CR (customer requirements) [30], where

Quantitative analysis of customer satisfaction into Kano's model is carried out by calculating two values which are "better" and "worse" in order to reflect the average impact of a CR on customer satisfaction (CS) or dissatisfaction (DS) of all customers as follows [31]:

Coefficient of cause satisfaction (CS):

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

Coefficient of cause dissatisfaction (DS):

$$= \frac{O+M}{M+O+A+I} \quad (2)$$

In making decisions about product developments, the features that have to be taken into consideration for improvement are the features that has the greatest influence on the perceived product quality [32, 33], where their evaluation rule as follows :

$$M > O > A > I \quad (3)$$

In this formula, M stands for 'Must-be' requirements, O for 'One-dimensional' requirements, A for 'Attractive' requirement and I stands for 'Indifferent' requirements. It means that the range of 'Must-be' attribute have the largest range and it is large than the other attribute. This evaluation

rule recommends the first taking those product requirements into consideration, which are allocated to the requirement Kano's method category M because disregarding of such elementary basic elements creates dissatisfaction [34]. The 'Indifferent' attribute has the least acuteness because it has only minor influence on the employee's satisfaction. If this attribute did not being fulfill, the employees will doesn't feel dissatisfy. Table 1 show the six categories quality attributes influenced to the customer satisfaction.

Table 1: Kano's evaluation table

FUNCTIONAL	DYSFUNCTIONAL				
	1. Like	2. Must-be	3. Neutral	4. Live with	5. Dislike
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. Dislike	R	R	R	R	Q

A = Attractive; M = Must-be; R = Reverse; O = One-dimensional; I = Indifferent; Q = Questionable

Must-be Requirements (Threshold / Basic attributes). If these requirements are not fulfilled, the customer will be extremely dissatisfied. The must-be requirements are basic criteria of a product. Fulfilling the must-be requirements will only lead to a state of "not dissatisfied". Must-be requirements are in any case a decisive competitive factor, and if they are not fulfilled, the customer will not be interested in the product at all.

One-dimensional Requirements (Performance / Linear). With regard to these requirements, customer satisfaction is proportional to the level of fulfillment – the higher the level of fulfillment, the higher the customer's satisfaction and vice versa. One-dimensional requirements are usually explicitly demanded by the customer.

Attractive Requirements (Exciters / Delighters). These requirements are the product criteria which have the greatest influence on how satisfied a customer will be with a given product. Attractive requirements are neither explicitly expressed nor expected by the customer. Fulfilling these requirements leads to more than proportional satisfaction. If they are not met, however, there is no feeling of dissatisfaction.

Indifferent Attributes. The customer does not care about this feature. Means that the customer is not concerned with this product attribute and is not very interested whether it is present or not.

Questionable Attributes. It is unclear whether the customer expects this attribute. This situation occurs if there is a contradiction in the customers' answers to the paired questions. A questionable rating indicates incorrectly phrased question, misunderstanding of a question, or an incorrect response.

Reverse Attributes: Means that some of the respondents' satisfaction decreases with the existence of this requirement, but they also expect the reverse of it.

III. METHODOLOGY

This study is carried out in a manufacturing industry related to how their employees' satisfaction as a case. The data and information related to their performance is categorized into the important level based on ranking level. The ranking level used is to generate the importance level to meet the customer needs, while Kano model is to determine what the factors that satisfy the customer.

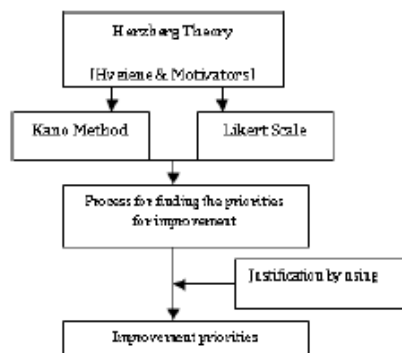


Fig.1 Flow to find the priorities improvements in using Kano & Likert Scale.

Figure 1 show that the questionnaire developed refers to Herzberg theory using Kano method and Likert scale. Each elements of Herzberg theory related to hygiene and motivators factors are generated into Kano pairwise of questions formulated so that the employees can answer in one of five different ways. The first question concerns to the reaction of the customer related to functional form of the question, while for the second question concerns to the reaction of dysfunctional form of the question. In this study, the survey questionnaire is distributed to 100 operators.

The wording of the alternatives in the questionnaire developed that is as the most critical choice were made refers to the Kano methodology such as "I like it that way," "It must be that way," "I am neutral," "I can live with it that way," "I dislike it that way". While in Likert scale, the questionnaire developed is based 5 scaling interval; "Strongly Like", "Like", "Nor Like or Dislike", "Dislike", and "Strongly Dislike".

IV. RESULTS & DISCUSSIONS

Table 2 shows the quality attributes of Kano method and mean value of Likert scale of each questions developed towards Herzberg attributes.

A. Based on Kano method

Table 2 shows that based on "M>O>I>A" [32], the company have to take action on elements Q8 related to supervisory of hygiene factors. This is due to this element perceived by respondents as "Must-be" attributes. However, based on the number of CS - DS [31, 35], this element is ranked level Q2. The ranking level no.1 is on element Q25 since the negative values is -0.50 as the highest negative value. In addition, refers to Kano average, both are less than 2.5 together with Q1, Q16, Q25 which is means that the respondents feels 'It Must-be that way' to 'Neutral'.

B. Based on Likert Scale

Based on Likert scale, we found that the lowest mean value is on Q7. With the value of 2.3, this is means that the respondents feel 'Dislike' to 'Nor Dislike and Like'. The respondents tend to feels 'Dislike' if the average values less than 3, where the Herzberg elements involved are Supervisory (Q18), Status (Q6, Q7, Q9), Job Security (Q24), and Salary (Q28, Q30). The most of them is 'Status', due to the overall average 2.62 (less than 3).

C. Based on Hygiene and Motivator of Herzberg

Based on Kano method and Likert scale, we found the respondents feels dissatisfied. This is due to several the averages values refers to Likert and Kano method in Hygiene factors found less than 3. (Likert: Q18, Q6, Q7, Q9, Q24, Q28, Q30 ; Kano: Q1, Q16, Q18, Q6, Q2&4, Q3, Q5, Q29). Even though Q29 refers to Kano is less than 3, based on Herzberg theory this will not effect to dissatisfy the employees. While based on "M>O>A>I", the elements of Supervisory (Q18) is in "Must-be" attributes. Since this element is part of Hygiene factors, this factor should be improved where if it is not, it will bring to employees dissatisfied. This is due to the hygiene factors should be completely fulfilled first as the most fundamental for satisfaction results plus one or more elements of the motivator factors, where by fulfilling the elements of hygiene factors merely make the respondent to feels 'not dissatisfied'. Fulfilling the elements of motivator factors without completely elements of hygiene factors fulfilled will not make the workers satisfaction.

Table 2. Herzberg [Hygiene & Motivator] in Likert vs Kano Scale

			AVERAGE		RANK & Attributes		
HERZBERG	Q	Elements	Likert	Kano	L	K	CS_DS
HYGIENE F	COMPANY POLICY & ADMIN	1 Policy book	4.33	2.5	8	1	39 [0]
		12 Lunch hour	3.78	4.44	12	1	25 [0]
		13,14 Working hour	3.475	4.58	17	1	24,23 [0]
		15 Uniform	3.23	4.72	20	1	22 [0]
		19 Documentation	3.56	5	14	1	20 [0]
		20 Communication	3.61	5	13	1	19 [0]
	22 Meeting	3.56	5	14	1	17 [0]	
	SUPERVISORY	16 Instruction task	3.5	2.5	16	1	8 [-0.06]
		18 Employees difficulty	2.61	2.5	27	M	2 [-0.47]
	INTERPERSONAL RELATION	11 Social activities	3.17	4.44	21	1	31 [0.06]
	STATUS	6 Transportation	2.39	2.78	28	1	4 [0.13]
		7 Hotel	2.3	3.89	29	1	7 [-0.06]
		8 Insurance	3.11	3.33	22	1	6 [-0.06]
		9 Scholarship	2.67	4.72	26	1	10 [-0.06]
	WORKING CONDITION	24 Equipment facilities	4.39	2.36	6	1	29,28 [0]
		3 air-con facilities	4.61	1.93	3	R	3 [-0.29]
		5 Space	4.39	2.78	6	1	27 [0]
	JOB SECURITY	24 Warning letter	2.94	5	23	1	15 [0]
		21 Decision approval	3.89	5	11	1	18 [0]
	SALARY	25 Salary payment	4.83	2.5	5	R	1 [-0.50]
		27 Increment salary	4.44	3.05	5	R	13 [0]
		28 Overtime payment	2.89	3.89	24	1	5 [-0.06]
30 Allowance		2.72	3.61	25	R	9 [-0.06]	
GROWTH	10 Training	3.39	4.72	19	1	26 [0]	
MOTIVATING	WORK ITSELF						
	RESPONSIBILITY	23 Discussion	3.9	5	10	1	16 [0]
	ACHIEVEMENT	17 Task completion	3.44	5	18	1	21 [0]
	ADVANCEMENT						
	RECOGNITION	26 Reward	4.5	3.33	4	R	14 [0]
		29 Commission	4.06	2.5	9	R	32 [0.33]
	31,32 Bonus	4.78	3.89	2	R	12,11 [0]	

Kano Manipulating Graph (KMG) Approach (proposed for justification the improvement priorities required)

Since the satisfaction points and attributes resulted refers to Kano method, Likert scale, and Herzberg theory are in the different values for improvement priorities should be taken, on how to find the priorities for Herzberg elements to be improved, Sihombing et al., [36] proposed that "Graph of Kano Manipulating Values" = Ranking value of Likert \cap Ranking value of Kano \cap Ranking value of CS-DS \cap "M>O>A>I".

On this, the graph depicts the comparison between the values of CS vs. DS and F (Functional) vs. DF (Dysfunctional) of Kano pairwise questions with the assumptions as follows:

$$\begin{aligned} \rightarrow CS \text{ value} &= -DS \text{ value,} \\ \text{then } DS \text{ value} &= -CS \text{ value} \end{aligned} \quad (4)$$

$$\begin{aligned} \rightarrow F \text{ value} &= -DF \text{ value (or } DF') \\ \text{then } DF \text{ value} &= -F \text{ value (or } F') \end{aligned} \quad (5)$$

Figure 2a shows the graph for Kano related to Customer Satisfaction (CS) and Customer Dissatisfaction (DS) where Q18 is located in CS \uparrow and DS \uparrow , while in Figure 2b is located in CS' \uparrow and DS' \uparrow . Since the improvement required is related to dissatisfaction first (DS \uparrow), if we use only the graph CS vs. DS, we will confuse to choose which of elements need to be taken for improvement made. This is due to in DS \uparrow area, there are elements existed such as Q25, Q3, Q8, Q9, and Q28 beside Q18 itself (Figure 2a). However, by constructing the comparison in reverse value (negation value) in Figure 2b, we found that the elements inside the CS' \uparrow area are Q6, Q8, Q18, Q21, Q23, and Q28. This is means, only Q8, Q18, and Q28 having in the same location based on assumption DS \uparrow = CS' \uparrow .

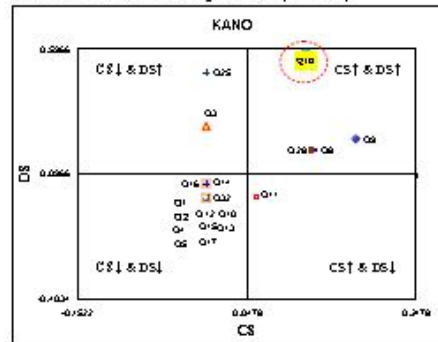


Fig. 2a. Kano [CS vs. DS]

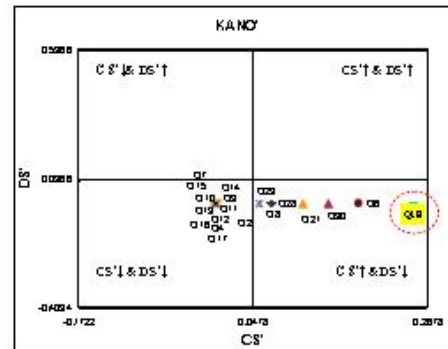


Fig. 2b. Kano [CS' vs. DS']

In addition, since CS and DS values are rooted from the Functional and Dysfunctional of Kano pair questions (see 2.2), then we can make the comparison based on the proposed assumption into the graph shown in Figure 3a and 3b. By integrating Figure 2a and 2b to Figure 3a and 3b, we found as follows:

"Graph" =
 {CS vs. DS} ∩ {CS' vs. DS'} ∩ {F vs. DF} ∩ {F' vs. DF'}
 = {Q25, Q3, Q8, Q9, Q18, Q28} ∩ {Q6, Q8, Q18, Q21, Q28}
 ∩ {Q6, Q7, Q18, Q30}
 ∩ {Q3, Q5, Q6, Q13, Q18, Q25, Q27, Q29, Q30, Q31}
 = Q18

Hence, we can conclude that elements of Q18 is as the first priorities for improvement required since this element fulfil all of the criteria such as Herzberg theory, ranking level/mean values of Likert scale, Kano mean values, CS-DS, and Kano attributes, that are "Hygiene factor", "2.61 (<3)", "Rank 2", "2.5 (<3)", and "Must-be" attributes in respectively.

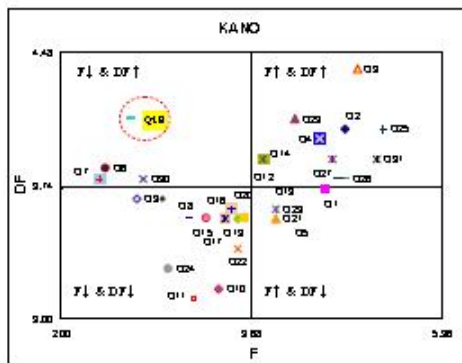


Fig. 3a. Kano [F vs. DF]

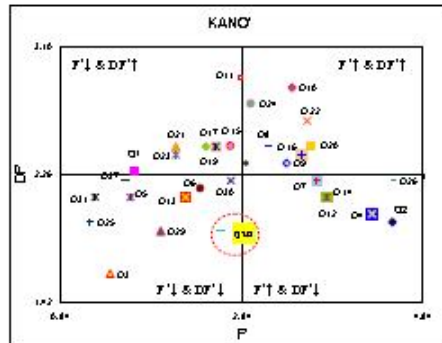


Fig. 3b. Kano [F' vs. DF']

V. CONCLUSION

In depicting what the elements of Herzberg theory that need to be improved through the questionnaires developed in this study, the approaches using Kano method and Likert

scale (sometime) produce the different results (inconsistency). This is as we can see from the different ranking level of their mean / average values. Although using Kano method scholars proposed the theory on how to look the most importance elements resulted from the survey, it seem that the ambiguity occurred toward which elements should be taken for improvement or maintained.

Based on this fact, we therefore propose the way to manipulate data against the survey resulted into the Kano manipulating graph in order to justify the most priorities elements that should be taken for improvement by company. In this case, we do trial against the measurement of employees satisfaction based on Herzberg theory, where the hygiene factors is a fundamental factors that will bring to customer satisfaction. By manipulating the values of customer satisfaction (CS) and dissatisfaction (DS) as well as the mean values of Kano in pairwise of functional and dysfunctional forms, the results show with consistently to the Likerts scale and also to theory of Herzberg related to employees' satisfaction.

In this study, we found that the company has to carry out the improvement against the "Supervisory" works related to if the employee faced the difficulties in their work (Q18). This is one factor that will make the employee dissatisfied, if the company cannot fulfill their employees' need and/or to improve its.

Since the study carried out is limited to employee's satisfaction using Herzberg theory, the manipulating data of Kano approached into the graph are therefore need to be applied in other satisfaction theory for the future work.

ACKNOWLEDGMENT

The authors would like to thank CRIM-UTeM. This project is supported by CRIM through PJP/2011/FKP (11D) S00878.

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