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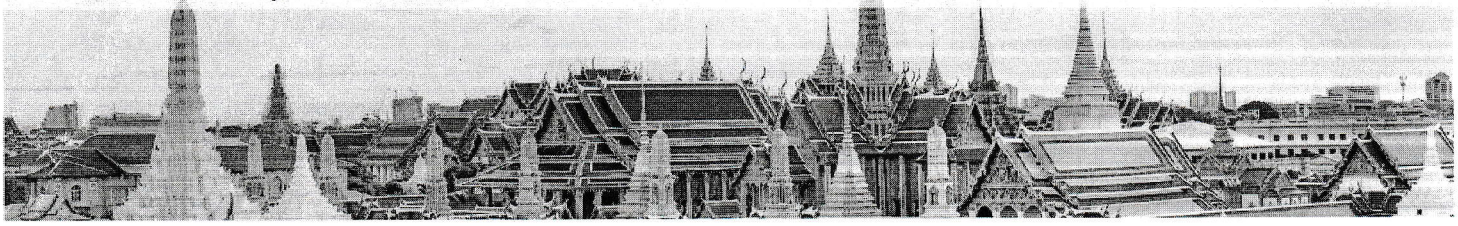

PROOF OF ATTENDANCE

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IEEM18-P-0564: How Kano's Performance Mediates Perceived SERVQUAL Impact on Kansei
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How Kano's Performance Mediates Perceived SERVQUAL Impact on Kansei

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Abstract – **Through Kansei Engineering (KE) methodology in services, the perceived service quality shows a direct impact on Kansei response. In order to strengthen the KE methodology, Kano model is embedded considering the attractive [A] and one-dimensional [O] performances. However, to what extent the Kano performance brings significant impact on Kansei is questionable and has not been explored yet. It is beneficial to measure the effort spent to improve a certain service attribute, considering the Kano performance and its impact on Kansei. This study on logistics services confirms that the Kano's attractive category [A] shows the highest impact on Kansei (with loading of 0.502), followed by one-dimensional [O] and must-be [M] ones (with loadings of 0.514 and 0.507), respectively. The service provider should prioritize Kano's [A] service attributes first for improvement.**

Keywords - **Kano, logistics services, Kansei, SERVQUAL**

I. INTRODUCTION

Nowadays, customers are increasingly more demanding. The more fulfilled, the more satisfied the customers are. Their needs consist of basic, one-dimensional, and attractive attributes, according to Kano *et al.* [1]. With regard to Kano's attractive service attributes [2], service providers and companies should listen, understand and capture carefully the voice of customer, especially the latent needs. The latent needs refer to the unspoken emotional needs [2].

Customer satisfaction only is insufficient. Due to tight business competition nowadays, to delight our customers is more critical for long-term benefits [3]. It would be more beneficial for service providers to focus more on attractive and desirable service attributes for their potential customers. Basically, something is attractive today will become a known attribute and function tomorrow, and sooner it will be used throughout the whole world.

Customer satisfaction, basically, comprises of two components, i.e., cognition and affect. Both cognitive and affective satisfactions should not be neglected. More recent studies regard emotional satisfaction as a more dominant driver for customer loyalty. Dixon et al. [4] doubted that customer satisfaction alone is not sufficient in predicting the customer loyalty. However, the emotion-based interaction will be attaining more customer loyalty. A recent study on affective-based service quality [5] confirmed that customer emotional satisfaction (known as Kansei) has a significant impact on customer loyalty, and is proportionally mediating the relationship between perceived service quality and loyalty. More specifically, Kansei has been found to be equally important as cognition in a service interaction setting.

Kano model has a superior attribute to fill out the human latent needs or emotions. Those are the driver for customer satisfaction and delight. This model can promote a practical guidance for service providers in delivering the best-trade-off between resource and customer satisfaction [6]. Thus, the attractive Kano, which is called as a delighter, should be prioritized as it is deemed as a key to beat the competition in the market place [8].

Inherently, Kano's attractive and one-dimensional dimensions bring more impacts on Kansei, according to recent studies on Kansei Engineering in service quality [see [8], [9], [10]]. Recent studies on the integration of Kansei Engineering and Kano model in services show that Kano model is used to filter the performance of each service attribute regards to customer perception [see [2], [8], [9], [10]]. The identification, of which Kano's category influences Kansei the most, is still unexplored yet. The doubt lies in Kano's attractive attributes. Thus, the proof of it is highly required.

The objective of this study is to test whether the Kano's main categories, namely, attractive [A], one-dimensional [O] and must-be [M] have proportional impact on Kansei. An empirical study on logistics services has been conducted to verify the proposed hypothesis.

II. METHODOLOGY

A. Sample and Strategy

Data have been collected through in-depth interview and face-to-face questionnaire involving customers of a company providing logistics services. This research strategy is deemed to be powerful since it fits to the exploration and theory testing and extension [11]. As an object of this study, this company is categorized as a third-party logistics (3PL), providing delivery of documents, foods, and also ride-hailing. Those who have been using the services at least twice within a year offered by the company were targeted as participants. Data used in this study have been collected and modified from Hartono et al. [8]. Ten respondents were involved in the

in-depth interview, whereas, 157 subjects were valid for face-to-face questionnaire section. The unstructured in-depth-interview was used to explore the Kansei words and structure the logistics service attributes.

Purposive sampling was used as the sampling plan and strategy. It is one of non-probability sampling techniques in which a researcher chooses members of participants according to his/her judgment and considering resource saving such as time and budget.

B. *Constructs and Logistics Service Attributes*

There were two constructs utilized in the study, i.e., (i) perceived service quality with Kano category, and (ii) Kansei. The measure variables of each construct were adopted and modified from the previous studies [9].

The first construct "perceived service quality with Kano category" consists of 26 logistics service attributes as the measure variables. Those questions used to measure the perception on logistics services were modified from 22 service items of Parasuraman's SERVQUAL [12] to suit the context of logistics service. A pilot test has been conducted to reduce any wordings and perception bias. Apart from perception score, these logistics service attributes were measured in their importance and expectation levels as well [2].

The second construct "Kansei" comprises 10 measure variables, and has been measured using a five-point semantic differential scale. These variables were deemed as the representative of emotional needs for logistics services. They were as follows, helped, trusted, secured, comfortable, innovative, friendly, precise, professional, prompt, and affordable.

III. RESULTS

A. *Hypothesis and Data Analysis*

Perceived service quality has been proven as the antecedent of customer satisfaction and loyalty [2]. It also has been found to be correlated with emotions. It is confirmed that Kansei is considered to be customer emotional satisfaction which is influenced by perceived service quality and leads to loyalty [5]. According to Yang [3], Kano's attractive attributes have a significant impact on long-term customer and provider relationship. Kano model is found to strengthen the Kansei methodology [2]. The categorization of Kano in each of perceived service attributes is of critical. It implies that Kano's attractive performance has the greatest impact on Kansei, followed by one-dimensional and must-be performances, respectively. Thus, the identification and exploration of Kano category for each service attribute which leads to Kansei are of interest. The formulation of hypothesis is as follows [see Fig. 1].

H1. The Kano's category mediates the perceived service quality impact on Kansei

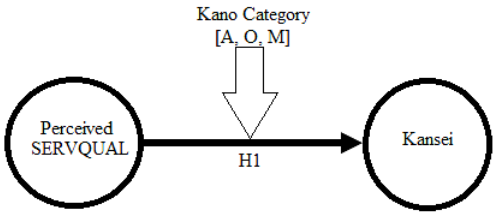

Fig. 1. Structural model of perceived SERVQUAL and Kansei

The data analysis has been performed using Microsoft Excel and Smart-Partial Least Square (Smart-PLS). Partial Least Square (PLS) is to deal with relative small sample size and promote free distributional form [13]. The proposed measurement models were tested through confirmatory factor analysis. Validity and reliability tests for each construct were done.

B. *Validity and Reliability Tests*

The properties of proposed constructs "Perceived SERVQUAL" and "Kansei" were tested through confirmatory factor analysis (CFA). This is done to verify the factor structure of the observed measures [14]. A set of three tests is reported, namely, (i) convergent validity, (ii) discriminant validity, and (iii) reliability, as shown in TABLE I.

As for the convergent validity, there are three criteria applied, i.e., (i) all item factor loadings exceeds 0.6, (ii) construct reliabilities exceed 0.7, and (iii) average variance extracted (AVE) of construct should exceed 0.5. Regarding the discriminant validity, it is determined by the square root of AVE for each construct which should be greater than its corresponding inter-construct correlation coefficient. The next one is about reliability test, determined by Cronbach's alpha of minimum 0.6. Based on the measurement of constructs as shown in TABLE I, all constructs were deemed valid and reliable for all Kano's categories.

TABLE I
MEASUREMENT OF CONSTRUCTS

Construct	Kano's A			Kano's O			Kano's M		
	AVE*	Composite Reliability	Cronbach Alpha	AVE*	Composite Reliability	Cronbach Alpha	AVE*	Composite Reliability	Cronbach Alpha
Perceived SERVQUAL	0.51	0.84	0.79	0.62	0.87	0.79	0.56	0.91	0.87
Kansei	0.47	0.88	0.84	0.46	0.87	0.83	0.44	0.88	0.84

C. *Structural Models*

This section consists of three proposed different structural models incorporating Kano's categories (A, O, and M), as provided in Fig. 2, 3, and 4. Given the Kano category, they show that perceived SERVQUAL is significantly correlated with Kansei. In other words, perceived SERVQUAL brings significant impact on Kansei. The perceived SERVQUAL with Kano's A category shows the greatest impact on Kansei [see the correlation measure of 0.526, as shown in Fig. 2].

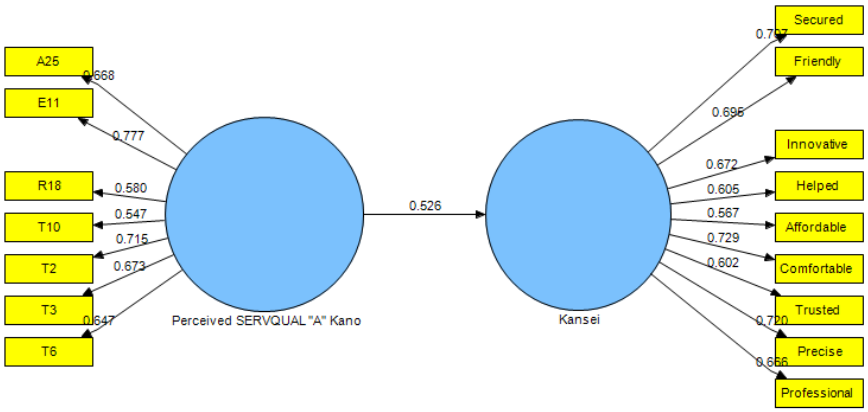

Fig. 2. Kano A and Kansei

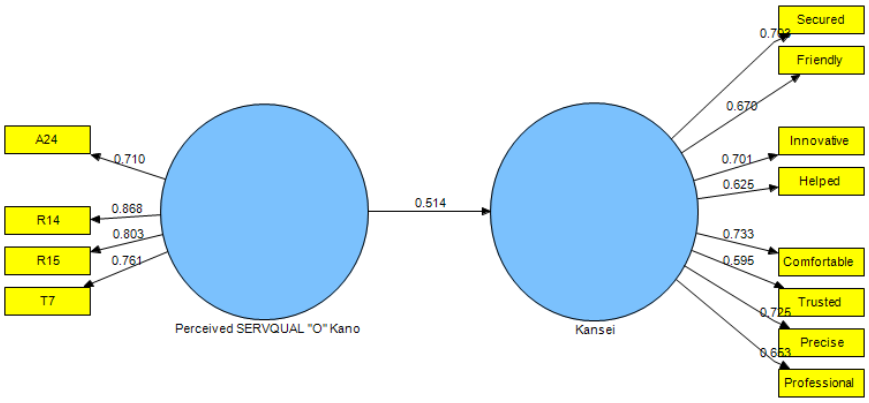

Fig. 3. Kano O and Kansei

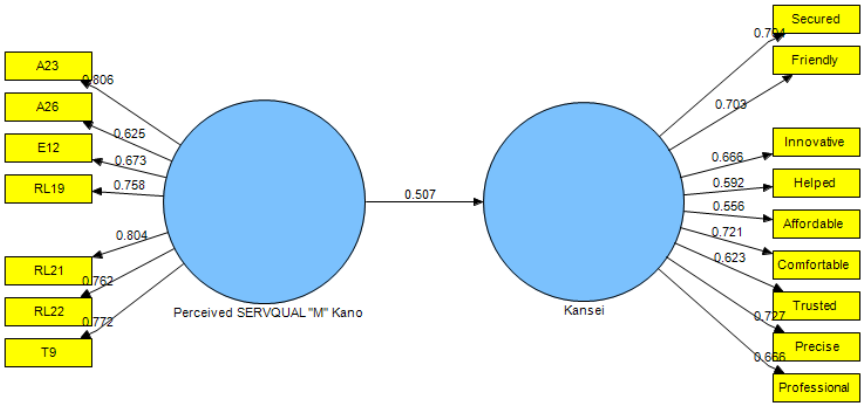

Fig. 4. Kano M and Kansei

According to the path analysis, it shows that, for Kano's A category group, there were 7 service attributes and 9 Kansei significantly representing the constructs perceived SERVQUAL and Kansei, respectively. The service attribute E11 "provision apology once any mistakes made" and Kansei "comfortable" were found to be the most critical, according to the factor loadings of 0.777 and 0.729, consecutively. Compared to first structural model, the other two structural models (i.e., (i) Kano O and Kansei, and (ii) Kano M and Kansei) show that perceived SERVQUAL has less impact on Kansei. At the Kano's O category, the service attribute R14 "friendliness of driver" and Kansei "secured" were of critical, whereas, at the Kano's M one, the service attribute A23 "safety" and Kansei "precise" become the sensitive ones.

IV. DISCUSSION

The proposed hypothesis that the Kano's category mediates the perceived service quality impact on Kansei was supported by the result. This study confirms and

complements the previous studies by Ladhari [15] and Hartono and Raharjo [5]. Ladhari [15] found that emotions is critical to the relationship between perceived quality and loyalty, whereas, Hartono and Raharjo [5] showed that both affect (known as emotions or Kansei) and cognition equally mediate the relationship between perceived service quality and loyalty.

Kano attractive performance and quality [A], known as delighter or excitement attribute, performs well in delivering its impact on Kansei. The result shows that Kano's A has the greatest impact on Kansei. The Kano's A relates to the unspoken needs or hidden voice of customers. It implies that the unspoken or latent need brings truly customer emotional needs and satisfaction (Kansei). It confirms the previous study by Hartono and Tan [2]. Inherently, the attractive attributes are those unforeseen by potential customers but they can yield ultimate satisfaction. They are sometimes not verbally asked by customer, but once they are provided it may produce significant satisfaction. The absence of these attributes will create nothing serious; business will go on as usual. Hence, the beauty of Kano's attractive attributes lies on the customer imagination. It will help customer discovering the needs which they have never thought about before. Inherently, this study finding supports a study by Hartono and Tan [2] in which the perceived Kano's attractive service quality is full of Kansei, as shown in Fig.5.

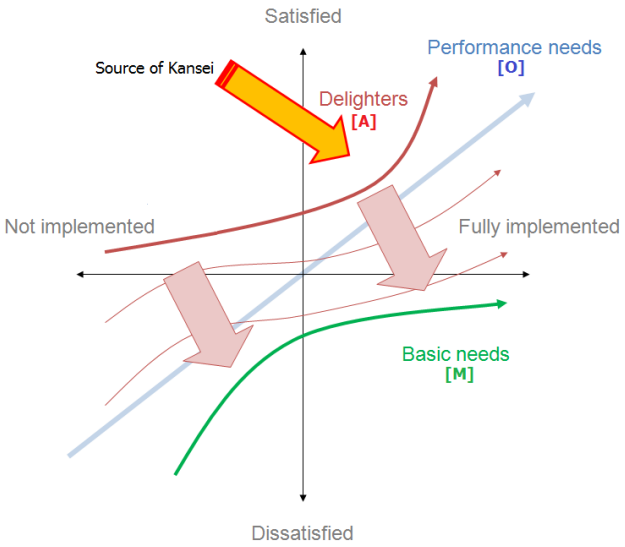

Fig. 5. Kano A and Kansei [modified from Hartono and Tan [2]]

Focusing on the improvement of service attributes with Kano's attractive category [A] will provide significant competitive advantages over a market competition. In very dynamic and diverse services offered in the market with the similar quality, the attractive attributes will act as the differentiation factor. In other words, they will produce "wow" factors in the mind of customers and boost a final confirmation for business transaction. Hence, given a very limited labor hours and budget, service providers should put their effort and focus on the attractive service attributes in terms of continuous improvement and innovation.

V. CONCLUSION

The purpose of this research was to test the influence of Kano's categories (especially, attractive [A], one-dimensional [O], and must-be [M]) on the impact of perceived service quality on Kansei. More specifically, the proportion impact of Kano's performance and weight on Kansei has been explored. Kansei represents the emotional needs of customer, due to service interaction and encounter. It has been found that Kano category mediates the impact of perceived service quality on Kansei. In addition, Kano's attractive [A] had the greatest effect on Kansei. Hence, given a very limited resources (e.g., budget, labor hours, and other potential resources), service providers should focus on attractive service attribute (known as delighter) for the effort of continuous improvement, breakthrough, and maintenance.

Following the attractive Kano, there were two consecutive Kano's categories, namely, one-dimensional [O] and must-be [M] to be taken note for the priority of improvement. The must-be [M] or known as basic attribute should be placed at the last for improvement effort. However, the functionality of this attribute must be guaranteed.

VI. LIMITATION

The finding of this study is considered limited due to relatively small sample size and a single service domain, which is logistics service. Other potential methods in measuring emotional satisfaction, real-time emotion state measurement, and various service settings can be considered for future study.

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