The 2nd International Research Symposium in Service Management

Service Imperatives in the New Economy

Yogyakarta, Indonesia, July 26 - 30 , 2011

Service Strategy

Service Design

Service Operation

Service Improvement

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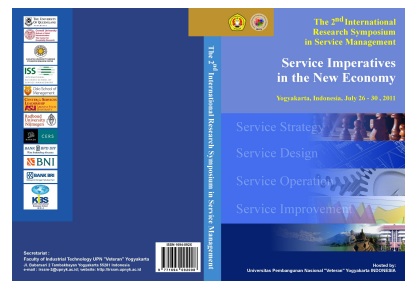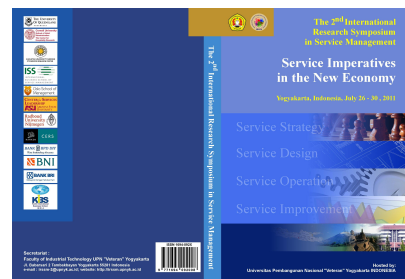Service Strategy

Service Design

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Hosted by:
Universitas Pembangunan Nasional "Veteran" Yogyakarta INDONESIA

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INDONESIA

PROGRAM SCHEDULE

Day One - Tuesday, 26 July 2011
Venue: 2nd Floor Inna Garuda Hotel

TIME	DESCRIPTION		REMARKS
Day One - Tuesday, 26 July 2011 **Venue: 2nd Floor Inna Garuda Hotel**			
RESEARCH AND TEACHING WORKSHOP			
08.30 - 17.15 **Venue**	**: *Research and Teaching Workshop*** **: KALASAN Room, 2nd Floor *Inna Garuda Hotel***		*Registration fee is required*
08.30-09.00	**Registration**		
09.00-09.15	**Opening Remark**		IRSSM Chairman
09.15-10.45	**An Overview of the Research Process** • A Brief Logic of Research Process • Developing Frameworks		Alison M Dean[1] Ramaswami Sridharan[2]
10.45-11.00	*Coffee Break*		
11.00-12.15	• Understanding Methodology • Developing Questionnaires		Alison M Dean[1] Ramaswami Sridharan[2]
12.15-13.15	*Lunch*		
13.15-15.15	**Case Study Development** • Developing Case Studies that can be Used to Connect with Industry Practice and for Teaching		Goran Svensson[3]
15.15-15.45	*Coffee Break*		
15.45-17.15	**Course Syllabi Development and Improvement** • Developing and Improving Syllabi and Other teaching materials.		Jay Kandampully[4]

1) Associate Professor Head, Newcastle Business School Faculty of Business and Law University Drive, Australia	3) Professor Oslo School of Management Norway Editor: European Business Review
2) Associate Professor of Logistic & SCM Deputy Head of School (Callaghan/City) Newcastle Business School University of Newcastle, Australia	4) Professor of Service Management The Ohio State University, USA Editor: Journal of Service Management Chair of IRSSM and SERI-Initiative

TIME	DESCRIPTION		REMARKS
THE 2ND INTERNATIONAL RESEARCH AND SYMPOSIUM IN SERVICE MANAGEMENT			
18.30 – 20.00 **Venue**	**: *Launching Ceremony and Networking*** **: Selasar (Veranda) of Nakula Sadewa Room** **2nd Floor Inna Garuda Hotel**		*All IRSSM participants are eligible to attend*
18.30–20.00	Launching Ceremony and Networking		Cocktail party

Day Two – Wednesday, 27 July 2011

TIME	DESCRIPTION	REMARKS
Day Two – Wednesday, 27 July 2011		
09.00 - 16.45 *Venue*	*: Symposium* *: 2nd Floor Inna Garuda Hotel*	
09.00–10.30	**Symposium Inauguration** • Address by the Symposium Chair, Prof .Jay Kandampully • Welcome Remarks Prof. Didiet Welly Udjianto, Rector, UPNVY • Welcome Remarks Sri Sultan Hamengkubuwono X Governor of Yogyakarta Special Region • Address by Hatta Rajasa The Minister of Economic Affairs of Republic of Indonesia	SADEWA Room
10.30-11.00	*Coffee Break*	
11.00-12.00	**Keynote Speech**: **Dr. James C. Spohrer** Director IBM University Programs World-Wide (IBM UP) IBM Almaden Research Center, San Jose, CA 95120 USA	SADEWA Room
12.00-13.15	*Lunch*	
13.15-14.45	**Parallel Session A**	

A1 (SADEWA Room)	A2 (NAKULA Room)
EA_003-15	T-Shaped Professional Thinking – Special Track
EA_100-15	**EA_160-TS**
FP_116-15	EA_161-TS
FP_074-16	EA_162-TS

TIME	DESCRIPTION	REMARKS
14.45-16.15	**Parallel Session B**	

B1 (SADEWA Room)	B2 (NAKULA Room)
FP_069-16	FP_057-02
FP_007-16	FP_011-02
EA_095-16	EA_114-02
FP_139-14	FP_076-02

TIME	DESCRIPTION	REMARKS
16.15-16.45	*Coffee Break*	
17.30 – 22.30 *Venue*	*: Gala Dinner and Awards Presentation* *: Ground Floor of Rectorate Building, UPN "Veteran" Yogyakarta*	
17.30	Depart from Inna Garuda Hotel to UPNVY	Bus available
18.30-19.00	Attendances arrived at UPNVY	
19.00-20.15	- Dinner - Welcome Address by IRSSM-2 Host	Culture show performance
20.15-20.40	Presentation of - Best Paper Award - Young Service Researcher Awards	IRSSM Chairman
20.40-21.00	IRSSM-3 Planning	IRSSM Chairman
21.00-22.30	Free program for attendances	Musical entertainment
22.30	Back to the Hotel	Bus available

Day Three - Thursday, 28 July 2011

TIME	DESCRIPTION			REMARKS
Day Three - Thursday, 28 July 2011				
09.00 – 17.00 ***Venue***	***: Symposium*** ***: 2nd Floor Inna Garuda Hotel***			
09.00–10.15	**Keynote Speech**: "Biomimetics of Media and Communication: What the Cell Can Teach Us about Service?" **Dr. V.A. Shiva Ayyadurai, Ph.D.** Biological Engineering Department Massachusetts Institute of Technology U.S.A. Executive Director International Center for Integrative Systems Cambridge, MA 02138			SADEWA Room
10.15–10.45	*Coffee Break*			
10.45–12.30	**Parallel Session C**			
	C1 (SADEWA Room)	**C2 (NAKULA Room)**	**C3 (KALASAN Room)**	
	FP_109-01	FP_159-01	FP_052-02	
	FP_049-01	FP_059-01	FP_053-02	
	FP_025-01	EA_041-01	EA_048-02	
	FP_054-01	EA_122-02	FP_067-02	
	EA_080-01	FP_153-15	FP_056-02	
12.30–13.30	*Lunch*			
13.30–15.00	**Parallel Session D**			
	D1 (SADEWA Room)	**D2 (NAKULA Room)**	**D3 (KALASAN Room)**	
	FP_030-12	FP_005-04	Biomimetics of Media and Communication – Special Track	
	FP_148-03	FP_119-04		
	FP_149-03	FP_117-12		
	FP_154-03	EA_072-18		
15.00-16.30	**Parallel Session E**			
	E1 (SADEWA Room)	**E2 (NAKULA Room)**	**E3 (KALASAN Room)**	
	FP_071-13	FP_106-16	FP_091-02	
	FP_113-13	FP_101-15	FP_146-02	
	FP_147-08	FP_088-11	FP_126-02	
	FP_083-10	FP_141-11	FP_138-14	
16.30–17.00	*Coffee Break*			
17.00– 22.00 ***Venue***	***: Ramayana Dinner and Performance*** ***: Prambanan Temple***			*Additional payment is required for student audiences*
17.00	Depart from the Hotel			Bus available
18.15-19.15	Dinner in Prambanan			
19.15-19.30	Moving to the Venue			
19.30-22.00	Ramayana Ballet Performance			
22.00	Back to the Hotel			Bus available

A Proposed Integrative Framework of Kansei Engineering and Kano Model Applied to Services

Article

2 authors, including:

A Proposed Integrative Framework
of Kansei Engineering and Kano Model Applied
to Services

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Abstract - *Recent studies show that products and services hold great appeal if they are attractively designed to elicit emotional feelings from customers. This study introduces an integrative framework of Kansei engineering (KE) and Kano model, applied to services. KE captures and translates the emotional needs of customer (Kansei), whereas Kano model is used and inserted into KE to investigate the relationship between service quality attribute performance and Kansei. This integrative framework focuses on delightful service attributes, given that their impact on customer Kansei can be large. In support of the framework's applicability, survey was conducted on 100 Indonesian and 125 Singaporean tourists who stayed in luxury hotels in Singapore and Indonesia. The findings showed that perceived Sattractive qualities had a direct significant impact on Kansei response in both samples. As a practical contribution, this research provides insight on which service attributes deserve more attention with regard to their significant impact on customer Kansei.*

Keywords: *Kansei engineering, customer emotional need, Kano model, attractive attribute, services*

INTRODUCTION

As innovative products or services are of equivalent quality in the market place, a subjective evaluation of aesthetics becomes a critical precursor to customer satisfaction. Apart from cognitive evaluation and functionality consideration, emotions play a big role in product interaction, service encounters, and business transaction. Emotions might change human behavior over a relatively short term, as they are responsive to the immediate events. Since today's customers are highly dynamic and more demanding than ever, it forces the companies to consider more on customer latent needs, which are unspoken emotional needs. Essentially, information on customer emotional needs and their measurement are valuable input early in the service and product design processes.

During product experience or service encounter, there are 3 levels of brain processing that significantly related to emotions (Norman, 2004), i.e. visceral, behavioral, and reflective. „Visceral' and „behavioral' cover the initial impact of product appearance and usability without interpretation/consciousness, whereas „reflective' deals with longer use of product and reflection of past experience. Likewise, Jordan (2002) described three kinds of abstraction level: usability/functionality, emotions/user experience, and persona or social factors. Inherently, emotional design and achievement of social status are required to fulfill customer emotional needs (Khalid & Helander, 2006).

A term for emotions in Human Factors/Ergonomics is typically called „hedonomics' (Khalid & Helander, 2006), and „Kansei' in Japanese (Nagamachi, 1995). The development of products involving customer emotional needs was initially proposed by Nagamachi in 1970s. Nagamachi introduced Kansei engineering (KE) as a powerful product development method which takes into account customer emotional needs (Kansei). This method has been successfully used by Mazda Motor Corporation for developing the Miyata model which symbolized "human-machine unity" (Nagamachi,

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1995). Clearly, the eminence of KE lies in its abilities to quantify customer Kansei, and to build quantitative relationships between Kansei and the design features of product or service.

A critical thought was raised "What design features really do have significant impact on customer Kansei?" Logically, the level customer emotional satisfaction is positively and linearly related to the level of product or service improvement. In some cases, however, that relationship is no longer linear (Kano et al., 1984; Chen & Chuang, 2008). Surprisingly, only a little innovation might lead to a large amount of customer delight. The Kano model has the potential to fill out unspoken or latent human needs (known as attractive quality), the satisfaction of which might lead to customer delight. This paper discusses those issues presented in the form of an integrative framework of the Kano model and KE applied to services. The framework shows how customer Kansei investigated and modeled, and linked to Kano's attractive service attributes to give prioritization either for improvement or maintenance.

This paper is organized as follows. Following the introduction, a brief review of the Kano model and KE is presented. Thereafter a proposed integrative framework and a result of empirical study on luxury hotel services are discussed. Lastly, conclusion and further research are provided.

THE KANO MODEL AND KANSEI ENGINEERING

The Kano Model

Kano et al. (1984) categorized customer attributes into three main different types, i.e. Must-be (M), One-dimensional (O), and Attractive (A). A must-be (M) attribute is related to needs not mentioned explicitly and taken for granted by customers. A one-dimensional (O) attribute explains the spoken needs of customer, the more it is fulfilled, the more the customer becomes satisfied in a proportional way to the degree of satisfaction. The third one, it is called attractive attribute (A). It means a very little improvement or fulfillment will make a significant increase in the level of customer satisfaction.

In order to identify which Kano category a particular service attribute falls under, the Kano questionnaire is used (Kano et al., 1984). A subject is faced with two Kano situations: i) The provision of service attribute, and ii) The absence of service attribute. In either situation, the subject must choose one of the responses as shown in Table 1 to express his feeling of satisfaction (Kano et al., 1984; Chen & Chuang, 2008). By compiling these two responses, the service attribute criterion can be identified as A, O, M, I, R, or Q.

Table 1. Kano evaluation table

Service criteria/attributes		Dysfunctional				
		Satisfied	It should be that way	I am indifferent	I can live with it	Dis-satisfied
Functional	Satisfied	Q*	A	A	A	O
	It should be that way	R	I	I	I	M
	I am indifferent	R	I	I	I	M
	I can live with it	R	I	I	I	M
	Dissatisfied	R	R	R	R	Q

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

The Kano model application brings competitive benefits for product or service development process. It can be used as a prioritization tool if a trade-off needs to be made. According to Matzler & Hinterhuber (1998), it is not very beneficial to invest in improving must-be qualifications (M) which have already obtained a satisfactory level. Hence, given a very limited resources (e.g. financial and/or technical constraints), it is highly suggested to prioritize higher quality attributes (i.e. attractive (A) qualifications).

Kansei Engineering (KE) in Services

The trend of the 21st century is in hedonism, pleasure, and individuality. Such notions stimulate customers to shift their focus on emotions and pleasure in product design rather than functionality (Helander, 2003). KE has a strong ability to deal with such trends and to accommodate customer emotional needs/Kansei (Nagamachi & Imada, 1995).

KE has performed its superiority against other similar methods. It has the ability to translate customer emotional needs into concrete design parameters through engineering (Schütte et al., 2004; Nagamachi, 2002; Nagamachi et al., 2009). As a result, it can minimize the subjective interpretation of emotions/Kansei. Also, this method is able to modify and optimize product properties which are not directly visible, such as the atmosphere of a concert hall or the comfort of a hospital (Schütte et al., 2008). In addition, there have been some successes in integrating KE with quality function deployment method (Schütte et al., 2004).

Traditional approaches of KE have been focusing on designing physical products that generate significant impact on emotions. However, in today's complex circumstances customers experience physical products and also non-physical surroundings. For instance, in a restaurant, customer emotions (Kansei) may be influenced not only by the cleanliness of dishes and other physical/tangible stuffs, but also by the friendliness/politeness of staffs, accuracy of bills, and prompt service. KE has to be capable of conducting examinations of both products and services in a single study (Schütte et al., 2004).

PROPOSED INTEGRATIVE FRAMEWORK WITH EMPIRICAL STUDIES
The idea of integrating Kano's model and KE was first discussed by Lanzotti & Tarantino (2008). However, there has been no research that analyzed the relationship between the product performance's category and Kansei. Current study promotes an integrative framework explaining the impact of service attributes categorized as attractive quality (A) on customer emotional needs in services. The framework consists of seven phases (as shown in Figure 1), which is inspired by the work of Schütte et al. (2004) and an extended work of Hartono & Tan (2010).

Selection of Service Domain
A luxury hotel type was chosen as the service domain. The survey was conducted in luxury 4- and 5-star hotels in Singapore and Indonesia. This hotel type has relatively complete and complex services which potentially affect all the human senses and emotions. According to a study by Barsky & Nash (2002), luxury hotels were reported to have greater strength of emotions than any other hotel type.

Collection and selection of Kansei words
The Kansei words were collected and interpreted from interviews with seven tourists who stayed in luxurious hotels. One example of interview response was *'...excellent stay, hotel is a little old but it is well maintained. The environment and surrounding are cozy. It is just a walking distance to the shopping downtown Orchard road, and it has an excellent Chinese restaurant...'* According to that statement, the Kansei words captured were excellent, cozy, and convenient. In order to give a wider range of Kansei word collection, this process was coupled with findings from several relevant sources of information, such as journals, magazines, and web pages of luxurious hotels.

As a result, 40 Kansei words that describe the emotional engagement between customers and hotel services were selected. In order to obtain more manageable and relevant Kansei words, these words were reduced to be 16 by using affinity diagram, involving five participants. All the volunteers had been past occupants of luxury hotels. The result was a set of refined Kansei words attached to the questionnaire.

Participants
A hundred Indonesian and 125 Singaporean tourists participated and reported in this study. Those who stayed in luxury hotels for at least two days were the target of this survey. A face-to-face questionnaire was used. The interviewer explained the study objective and some unfamiliar terminologies, and answered any relevant queries from the participants. The subjects were asked for their responses based on questions in the paper survey, and then the interviewer took a record. About 20 minutes was spent for each session.
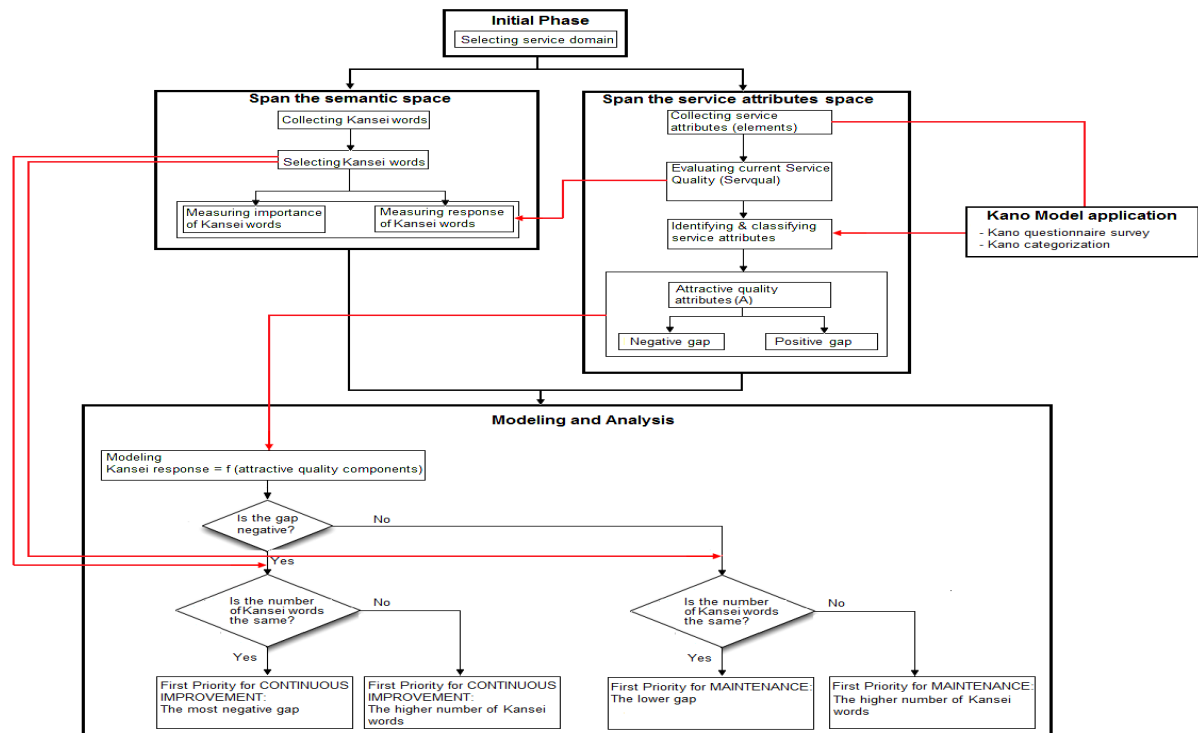
Figure 1. A refined integrative framework of KE and kano model

Importance and response of Kansei

The importance and response of Kansei were measured using a five-point Likert semantic differential scale (Osgood et al., 1957) among all participants. In order to reduce the bias/misinterpretation influenced potentially by language barrier, emoticons representing each Kansei word were attached to the survey form.

Table 2 presents a comparison of the average importance and response of Kansei ratings. In general, at the importance criterion, Indonesians tend to have higher score than their Singaporeans counterpart. However, both Singaporeans and Indonesians have relative the same scores at the Kansei response.

Table 2. Descriptive statistics of kansei word

Kansei word	Indonesian								Singaporean							
	Importance				Response				Importance				Response			
	$\bar{x}$*	s**	Min	Max	$\bar{x}$	s	Min	Max	$\bar{x}$	s	Min	Max	$\bar{x}$	s	Min	Max
Convenience	4.12	0.56	3	5	2.98	1.17	1	5	4.17	0.83	3	5	3	1.08	1	5
Attractiveness	4.20	0.83	3	5	2.92	1.43	1	5	4.11	0.83	3	5	2.8	1.04	1	5
Cleanliness	4.24	0.85	3	5	2.86	1.40	1	5	3.96	0.86	3	5	2.76	1.11	1	5
Welcomeness	4.18	0.83	3	5	3.06	1.33	1	5	3.99	0.83	3	5	2.85	0.98	1	5
Confidence	4.10	0.55	3	5	2.85	1.19	1	5	4.00	0.81	3	5	2.93	0.98	1	5
Happiness	4.11	0.47	3	5	2.94	1.13	1	5	3.85	0.87	3	5	3.09	1.15	1	5
Relaxedness	4.28	0.73	3	5	2.78	1.37	1	5	3.93	0.81	3	5	2.87	1.08	1	5
Peacefulness	4.18	0.83	3	5	2.60	1.43	1	5	3.83	0.78	3	5	2.93	1.00	1	5
Passion	4.02	0.66	3	5	2.90	1.18	1	5	4.00	0.81	3	5	2.84	1.12	1	5
Satisfaction	4.18	0.83	3	5	2.94	1.30	1	5	4.28	0.78	3	5	2.91	1.04	1	5
Spaciousness	4.16	0.77	3	5	2.92	1.32	1	5	3.93	0.84	3	5	2.85	1.04	1	5
Elegance	4.04	0.75	3	5	2.98	1.30	1	5	3.92	0.73	3	5	2.81	0.98	1	5
Friendliness	4.36	0.80	3	5	2.76	1.39	1	5	4.03	0.84	3	5	2.71	1.04	1	5
Modernization	4.16	0.77	3	5	2.86	1.13	1	5	3.95	0.79	3	5	2.88	1.11	1	5
Relief	4.28	0.76	3	5	2.94	1.25	1	5	3.79	0.81	3	5	2.92	1.06	1	5
Quietness	4.10	0.79	3	5	2.86	1.39	1	5	3.97	0.82	3	5	3.16	0.84	1	5
Grand mean	4.16				2.88				3.98				2.89			

*$\bar{x}$ = mean;** s = standard deviation*

Collection and evaluation of service attributes by incorporating Kano categorization

Relevant service attributes in luxury hotel were selected and collected as the source of external stimuli. The proposed service items were referred to Service Quality (Servqual) model developed by Parasuraman et al. (1988) with some modifications for use in luxury hotels. In total, there were 39 service items categorized into five dimensions (Tangible, Reliability, Responsiveness, Assurance, and Empathy). Table 3 presents the descriptive statistics of service quality incorporated with Kano category. The result shows that up to 30 percent of the service attributes was categorized as attractive quality (A), i.e. 13 out of 39 for Indonesians and 11 out of 39 for Singaporeans.

Table 3. Descriptive statistics of service quality incorporated with kano category

Service attribute	Indonesians					Singaporeans				
	I*	E**	P#	Gap##	Cat+	I	E	P	Gap	Cat
TANGIBLE										
A1.The receptionist and information desk is visually appealing	4.23	4.38	3.42	-0.96	O	4.03	4.31	3.40	-0.91	**A**
A2.The employees' uniforms are clean, nice, and neat	3.96	4.52	3.40	-1.12	O	3.95	4.17	3.37	-0.80	O
A3.The hotel has modern-looking equipment	3.96	4.46	3.40	-1.06	M	4.16	4.31	3.23	-1.08	I
A4.The hotel's interior and exterior are well managed & maintained	3.94	4.54	3.52	-1.02	I	4.04	4.13	3.13	-1.00	M
A5.The outdoor environment is visually clean	4.13	4.46	3.44	-1.02	O	3.97	4.33	3.23	-1.10	I
A6.The atmosphere of restaurant is inviting appetite	4.08	4.54	3.42	-1.12	I	3.89	4.25	3.35	-0.90	M
A7.The shops are attractive	4.06	4.44	3.36	-1.08	**A**	4.07	4.28	3.24	-1.04	O
A8.The hotel's lobby is comfortable	4.17	4.22	3.32	-0.90	**A**	3.97	4.13	3.51	-0.62	I
A9.The bedroom and bathroom are clean and convenient	4.04	4.20	3.44	-0.76	M	4.04	4.15	3.43	-0.72	**A**
A10.The hotel is well lighted	4.06	4.20	3.48	-0.72	I	3.99	4.40	3.25	-1.15	M
A11.The sports facilities are well maintained, clean, and convenient	3.94	4.26	3.36	-0.90	M	4.07	4.29	3.24	-1.05	I
A12.The music in hotel's lobby is soft and nice	4.09	4.14	3.34	-0.80	M	4.03	4.28	3.31	-0.97	M
A13.The scent in hotel's room and lobby is refreshing	3.89	4.30	3.52	-0.78	**A**	4.09	4.33	3.31	-1.02	O
A14.The meals served at the hotel are delicious	4.13	4.18	3.50	-0.68	I	4.00	4.31	3.27	-1.04	I
RELIABILITY										
B1.Your hotel reservation is handled efficiently and effectively	4.04	4.34	3.32	-1.02	M	4.03	4.21	3.41	-0.80	**A**
B2.Your booked guestroom is ready as promised	4.06	4.26	3.44	-0.82	O	4.12	4.31	3.23	-1.08	M
B3.The bill is charged accurately	4.08	4.16	3.62	-0.54	**A**	3.97	4.29	3.19	-1.10	I
B4.All size of servings are given correctly the first time	3.89	4.12	3.64	-0.48	**A**	4.16	4.31	3.29	-1.02	M
B5.The employees show a sincere interest in solving your problem	4.23	4.40	3.42	-0.98	**A**	4.11	4.21	3.28	-0.93	**A**
B6.The hotel insists on error-free records	4.09	4.28	3.30	-0.98	I	4.00	4.24	3.49	-0.75	M
B7.AC, TV, radio, lights, mini bar, & other equipment work properly	3.96	4.14	3.42	-0.72	O	3.96	4.24	3.29	-0.95	O
B8.Overall, you got what you paid for	4.08	4.40	3.42	-0.98	M	3.97	4.23	3.41	-0.82	M
RESPONSIVENESS										
C1.The employees tell you exactly when services will be performed	4.09	4.26	3.28	-0.98	I	3.99	4.09	3.47	-0.62	I
C2.The employees give you prompt service	3.87	4.22	3.34	-0.88	M	3.93	4.13	3.20	-0.93	**A**
C3.The employees are always willing to help you	4.06	4.30	3.44	-0.86	**A**	3.97	4.23	3.45	-0.78	**A**
C4.The employees are never too busy to respond to your requests	4.08	4.32	3.28	-1.04	**A**	4.07	4.19	3.31	-0.88	**A**
C5.Informative literature about the hotel facilities is provided	4.09	4.32	3.38	-0.94	**A**	4.08	4.31	3.17	-1.14	I
ASSURANCE										
D1.The employees have knowledge in answering your enquiries	4.13	4.18	3.40	-0.78	O	3.99	4.17	3.21	-0.96	**A**
D2.The behavior of employees instills confidence in you	3.92	4.20	3.48	-0.72	I	3.87	4.20	3.32	-0.88	M
D3.The employees know well about local places of interest	4.15	4.26	3.36	-0.90	**A**	4.03	4.12	3.41	-0.71	**A**
D4.The hotel provides a safe environment	4.13	4.32	3.42	-0.90	O	4.03	4.23	3.33	-0.90	M
D5.The employees are consistently courteous with you	4.17	4.30	3.38	-0.92	M	3.91	4.19	3.40	-0.79	O
D6.The staff explains clearly charges on your account	3.89	4.20	3.56	-0.64	O	4.13	4.16	3.48	-0.68	M
EMPATHY										
E1.The employees are helpful, friendly, and respectful	4.21	4.36	3.44	-0.92	M	4.01	4.32	3.33	-0.99	M
E2.The hotel gives you individual full attention	3.96	4.28	3.44	-0.84	**A**	4.17	4.13	3.40	-0.73	**A**
E3.The hotel has employees who give you personal attention	4.23	4.20	3.32	-0.88	**A**	3.95	4.23	3.33	-0.90	**A**
E4.The employees understand your specific needs	3.81	4.38	3.52	-0.86	I	4.19	4.17	3.16	-1.01	O
E5.The hotel has your best interests at heart	4.04	4.24	3.60	-0.64	O	3.91	4.31	3.29	-1.02	M
E6.The hotel has operating hours convenient to you	4.11	4.16	3.36	-0.80	**A**	3.99	4.20	3.45	-0.75	M
GRAND MEAN		**4.29**	**3.42**				**4.23**	**3.32**		

*I = importance; **E = expectation; #P = perception; ##Gap = perception – expectation; +Cat = Kano category*

Model fitting: link and evaluation

The perceived service quality with an ‚A' category and Kansei responses were linked and modeled by using stepwise linear regression (Efroymson, 1960). This method had an automatic procedure in cases where there was a large number of potential independent variables, and no underlying theory on which to base the model selection. Basically, at each iteration process, after a new independent variable is added in the model, a test will be made to check whether if other variables can be deleted without increasing the residual sum of squares (RSS). Afterwards, it will be terminated when the measure is locally maximized (Efroymson, 1960).

In each model, the five-scale Likert based scores given by respondents to each Kansei word and perceived service attribute were used as dependent and independent variables respectively. The statistical results for two groups (Indonesian and Singaporean samples) are shown in Table 4.

Table 4. Significant regression model for each kansei word

Kansei word	Indonesian	Singaporean				
	Linear model	p	R^2	Linear model	p	R^2
Convenience (K_1)	$K_1 = 1.15+0.462A_{13}$	0.02	0.177	$K_1 = 1.285+0.261C_4+0.25A_1$	0.000	0.197
Attractiveness (K_2)	$K_2 = -0.029+0.468B_3+0.353E_3$	0.000	0.315	$K_2 = 1.791+0.296D_3$	0.003	0.112
Cleanliness (K_3)	$K_3 = 0.599+0.677C_4$	0.000	0.239	$K_3 = 0.762+0.348A_9+0.241E_3$	0.000	0.277
Welcomeness (K_4)	$K_4 = 1.356+0.501A_{13}$	0.000	0.239	$K_4 = 1.868+0.285C_3$	0.002	0.112
Confidence (K_5)	$K_5 = 0.853+0.566A_{13}$	0.000	0.271	$K_5 = 1.887+0.353D_3$	0.002	0.130
Happiness (K_6)	$K_6 = 0.193+0.721C_4$	0.000	0.341	$K_6 = 2.034+0.272C_4$	0.002	0.121
Relaxedness (K_7)	$K_7 = -0.146+0.53C_4+0.394E_6$	0.000	0.396	$K_7 = 1.176+0.32C_2+0.201C_4$	0.000	0.232
Peacefulness (K_8)	$K_8 = 0.823+0.67C_4$	0.000	0.306	$K_8 = 1.821+0.325A_9$	0.000	0.162
Passion (K_9)	$K_9 = 1.5+0.357D_3$	0.005	0.153	$K_9 = 0.767+\mathbf{0.244}C_4+0.214A_9+0.192C_2$	0.000	**0.28**
Satisfaction (K_{10})	$K_{10} = -0.562+0.499B_5+\mathbf{0.456}C_4$	0.000	**0.426**	$K_{10} = 0.95+0.312C_2+0.277D_1$	0.000	0.263
Spaciousness (K_{11})	$K_{11} = 1.124+0.544C_4$	0.001	0.202	$K_{11} = 1.47+0.239D_1+0.196E_2$	0.000	0.194
Elegance (K_{12})	$K_{12} = 0.525+0.415E_3+0.294B_4$	0.000	0.334	$K_{12} = 2.113+0.216A_9$	0.025	0.067
Friendliness (K_{13})	$K_{13} = 1.045+0.586A_{13}$	0.000	0.287	$K_{13} = 1.409+0.224D_1+0.201A_1$	0.002	0.163
Modernization (K_{14})	$K_{14} = 1.398+0.446E_3$	0.004	0.163	$K_{14} = 1.676+0.301A_9$	0.001	0.13
Relief (K_{15})	$K_{15} = -0.155+0.439B_4+0.398C_4$	0.000	0.327	$K_{15} = 0.999+0.303E_2+0.258C_4$	0.000	0.24
Quietness (K_{16})	$K_{16} = 1.235+0.612E_6$	0.001	0.214	$K_{16} = 2.2+0.3C_2$	0.000	0.194

The most significant model was for Kansei words "Satisfaction" (*p*-value ≤ 0, R^2 = 0.426) and "Passion" (*p*-value ≤ 0, R^2 = 0.28) for Indonesian and Singaporean groups respectively. Both models show that the same service attribute "The employees are never too busy to respond to your requests" (C_4) had a slightly greater significant effect on Kansei. In other words, this attribute is the most critical to take care of either for continuous improvement or maintenance.

Analysis of action

It refers to the reverse of the significant models. The objective is to see the extent to which service attribute influences particular emotions/Kansei. By referring to the significant models as provided in Table 4, the reversed models are shown in Table 5.

Table 5. The significant relationship between service attribute and kansei word along with prioritized continuous improvement

Significant service attribute with A category	Related significant Kansei word*	Gap**	Priority
INDONESIAN SAMPLE			
A7.The shops are attractive	-	-0.98	
A8.The hotel's lobby is comfortable	-	-0.58	
A13.The scent in hotel's room and lobby is refreshing	Convenience, welcomeness, confidence, friendliness	-0.82	2
B3.The bill is charged accurately	Attractiveness	-0.68	8
B4.All size of servings are given correctly the first time	Elegance, relief	-0.76	5
B5.The employees show a sincere interest in solving your problem	Satisfaction	-1.00	6
C3.The employees are always willing to help you	-	-0.9	
C4.The employees are never too busy to respond to your requests	Cleanliness, happiness, relaxedness, peacefulness, satisfaction, spaciousness, relief	-0.92	1
C5.Informative literature about the hotel facilities is provided	-	-0.92	
D3.The employees know well about local places of interest	Passion	-0.88	7
E2.The hotel gives you individual full attention	-	-0.76	
E3.The hotel has employees who give you personal attention	Attractiveness, elegance, modernization	-0.68	3
E6.The hotel has operating hours convenient to you	Relaxedness, quietness	-0.92	4
SINGAPOREAN SAMPLE			
A1. The receptionist and information desk is visually appealing	Convenience, friendliness	-0.91	5
A9. The bedroom and bathroom are clean and convenient	Cleanliness, peacefulness, passion, elegance, modernization	-0.72	2
B1. Your hotel reservation is handled efficiently and effectively	-	-0.8	
B5. The employees show a sincere interest in solving your problem	-	-0.93	
C2. The employees give you prompt service	Relaxedness, passion, satisfaction, quietness	-0.93	3
C3. The employees are always willing to help you	Welcomeness	-0.77	9
C4. The employees are never too busy to respond to your requests	Convenience, happiness, relaxedness, passion, relief	-0.88	1
D1. The employees have knowledge in answering your enquiries	Satisfaction, spaciousness, friendliness	-0.96	4
D3. The employees know well about local places of interest	Attractiveness, confidence	-0.71	7
E2. The hotel gives you individual full attention	Spaciousness, relief	-0.73	6
E3. The hotel has employees who give you personal attention	Cleanliness	-0.89	8

*Kansei words with italic texts have significant negative relationship with service attributes; ** Gap = perception – expectation*

By engaging the attractive service attributes (A) only and taking into account the service gap, the next step was to decide an action whether to proceed with continuous improvement or enhancement/maintenance. Since all service gaps were negative, the actions were directed to the prioritized continuous improvement (see the ,priority' column in Table 5). Both groups shared the same significant service attribute to take care of, i.e. "The employees are never too busy to respond your requests". That service item was significantly related to 7 Kansei words (for Indonesian group)

and 5 Kansei words (for Singaporean group). Happiness, relaxedness, and relief seemed to be common emotional needs on two population groups.

CONCLUSION AND FURTHER RESEARCH

The Kano model helps to identify different categories of service attribute quality. The attractive category (A) as the main focus of this study is highly of interest to fulfill customer emotional needs/Kansei and to maximize customer overall satisfaction.

An integrative framework of the Kano model and KE has been proposed and tested through two empirical studies on luxury hotel services. The result showed that the perceived service attributes/qualities impacted on emotions/Kansei response. The more the Kansei words were significantly influenced, the more important the services attribute was.

As a practical contribution, this study gave a useful insight to the service designers. This helped them identify what efforts in terms of continuous improvement or enhancement/maintenance should be directed toward the attractive attributes (A) which have significant impact on emotions. According to research findings, the attribute "The employees are never too busy to respond to your requests" should be given the first priority for continuous improvement. This result gives insight for the hotel manager to take accurate actions in dealing with customer emotional needs fulfillment. Intensive regular trainings about character building, leaderships, communication skills, and focus on customers for staffs are encouraged. In addition, the hotel management should assure sufficient number of staffs equipped with their relevant knowledge and professionalism. In order to be customer conscious, a campaign slogan (such as ‚Always there for customer') might be useful for daily awareness to all hotel staffs.

Further research should focus on applying this integrative framework to access and to evaluate the relationships of customer emotional needs/Kansei and perceived service attributes in other service domains.

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