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Assessing and Developing Public Libraries Performance: Kano's Model Approach

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Abstract— Perbadanan Perpustakaan Negeri Kedah (PPAK) was established in 1961. To determine whether the library is providing a good service has occupied the attention of PPAK management for many years. In order to determine in greater detail how the users perceived the various services offered by the PPAK, KANO model instrument was used. To achieve this objective, a set of questionnaire was prepared consisting of 50 items, and distributed to 500 respondents. Among these questionnaires, the valid numbers only 265 or 53%. Two hundred and thirty five was rejected because of filled out incompletely. At the first stage, the data were analysed using Statistical Package for Social Science Package (SPSS). Then, the second stage Microsoft excel was employed to categorize the Kano's classification. The seven dimensions quality (easy to access, service is compatible, effectiveness of services, efficiency of services, service is reliable, provide right services, and the competency of staff) services taking from ALUS model were employed. Then, the users' perception was analyzed and compared. Service quality requirements were classified into five Kano's classification – attractive, must-be, one-dimensional, indifferent and questionable/reverse. The study found that PPAK service quality classified in 'Indifferent'. Proposed for further research is also discussed.
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Keywords—ALUS model, Kano's, Kedah Public Library, User Satisfaction

1. INTRODUCTION

PPAK (Perbadanan Perpustakaan Awam Kedah) is situated at the focal point of Kedah state focal. In this worldwide environment, PPAK is confronting new difficulties both from open clients and partners. In this specific circumstance, it is critical to assess PPAK administrations from the clients' perspective, or partners. There are different vital and strategies how to recognize and research the qualities of client necessities. Diverse methodologies are utilized to enhance quality. One of those methodologies is QFD [1]

The past literary works had uncovered that there are different techniques been utilized to gauge the library clients' fulfillment. For instance, crafted by [2] has proposed Disconfirmation Model, and SERVPERF. SERVQUAL has been secured by [3] and [4]; a use of the LIBQUAL instrument has been secured by [5] and the utilization of SERVPERF has been led by [6]. In the interim, [7] and [8] coordinated Kano's model and SERVQUAL to build up a

procedure of choice investigation for benefit quality. This paper presents an investigation utilized Kano's model as the instrument. The outcomes will empower the administration to settle on a choice, and furthermore will empower different analysts to in enhance some methodological, hypothetical and also viable in any imperfection for this investigation.

2. LITERATURE REVIEW
2.1 KANO Model
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The Kano display is a hypothesis of item improvement and consumer loyalty created in the 1980s by Professor Noriaki Kano, an understudy of Kaoru Ishikawa [9] . Kano's model is otherwise called the hypothesis of appealing quality and presents five quality characteristics of measurements on the premise of the connection between the level of adequacy of a given quality trait flat hub and consumer loyalty with that quality ascribe in vertical pivot to outline that item or administration quality client saw and consumer loyalty are multi-measurements [10]. For clear understanding the Kano's model is portrayed in Figure 1 underneath.
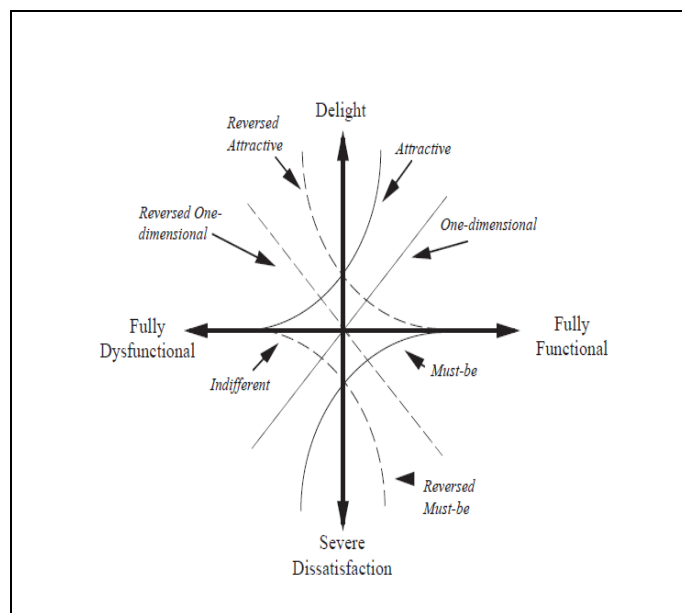

Figure 1: Kano's model of customer satisfaction
Source : Lai and Wu

The Kano display is an apparatus for envisioning the relationship among highlights definitively [11]. This model created in 1984 by Noriaki Kano, a teacher emeritus at the

University of Tokyo and a specialist in Total Quality Management, is utilized to discover and evaluate the quality saw by clients/clients of an item/benefit and the subsequent fulfillment/disappointment coming about because of the inconsistency amongst saw and expected quality [12]. In his model Kano recognize three sorts of item prerequisites which impact consumer loyalty diverse ways when met [13] and [14]. As indicated by [15] to accomplish consumer loyalty adequately, benefit giving firms ought know precisely what clients need as well as need to know how much exertion is expected to contribute on each and every trait that client anticipates that the administration will profit by Hence, understanding the item quality prerequisite is gainful to change of value and in addition item improvement.

In another perspective, similar to such a great amount in Lean theory, the Kano show is truly a mindset that can be connected to ordinary circumstances [16]. But, the conspicuous distinctive is the customary one-way quality model is centered around one specific quality component; just when the component is available are clients fulfilled, and the other way around, which is shown the connection between consumer loyalty and quality components is dealt with as straight [17]. This implies the relationship is not that straightforward. For some quality components, consumer loyalty can be significantly enhanced with just a little change in execution; while for some other quality components, consumer loyalty must be enhanced a little notwithstanding when the execution of the administration has been incredibly made strides. Utilizing the conventional approach to enhance consumer loyalty, it is conceivable that the client won't be happy with a specific quality component, or perhaps the consumer loyalty target will be over fulfilled [18]. Kano's model gives a powerful way to deal with sorting the client characteristics into various sorts, for example, must-be, one dimensional and appealing quality prerequisites.

2.1.1 'Must-be' Requirements (M)
The must-be necessities are fundamental criteria or prerequisite of an item. In the event that these necessities are not satisfied, the client will be greatly disappointed. Then again, as the client underestimates these necessities, their satisfaction won't expand his fulfilment. Satisfying the must-be prerequisites will just prompt a condition of 'not disappointed'. The client views the must-be necessities as essentials; be underestimates them and in this manner does not unequivocally request them. Must-be prerequisites are regardless a conclusive focused factor, and in the event that they are not satisfied, the client won't be keen on the item by any stretch of the imagination.

2.1.2 One-Dimensional Requirements (O)

With regard to one-dimensional requirements, customer satisfaction is proportional to the level of fulfillment. The higher level of fulfillment, the higher the customer's satisfaction, and vice-versa. One-dimensional requirements are usually explicitly demanded by the customer.

2.1.3 Attractive Requirements (A)

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 dissatisfaction. Product or service elements that exceed customers' expectation and are classified as attractive requirements, enhance customers' perceived value and their satisfaction.

2.1.4 Indifferent Requirements (I)

Indifferent requirements are the product or service which has a little significance for customers. No matter whether these requirements or attributes are sufficient or not, they will result in neither customer satisfaction nor customer dissatisfaction. This means that customers have no different feelings.

2.1.5 Reverse Requirements (R)

The term reverse quality requirements or attributes are referred to, have proportional of linear relationship between satisfaction and insufficient level of requirements and between dissatisfaction and sufficient level of requirements. A high degree of achievement of these requirements results in dissatisfaction and vice versa. In other words, customers are satisfied when these requirements are absent, but not satisfied when present

3. METHODOLOGY

3.1 Developing Kano Question for PPAK Service Requirements.

As per [19] , the beginning stage for the development of the Kano poll is the item prerequisites which have been resolved in explorative examination. With the end goal of this examination, the estimation instrument or Kano poll depends on the Academic Library Users Satisfaction (ALUS) show created by [20] post measuring advanced education library benefits in Malaysia. This nearby finished survey has two segments. Segment A contains inquiries to explain the respondent foundation, for example, nationality, race, sexual orientation, age, encounter utilizing the library, and the reason for going to the library. Segment B was dispensed for the scale sort questions utilizing Likert scale. By picking one to five options, respondents are asked for to answer useful and useless scales in the meantime to

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demonstrate their fulfilled level. Scale one is denoted very highly dissatisfied, two is highly dissatisfied, three is neutral, four is highly satisfied and five is very highly satisfied.

The estimation instrument chiefly connected 50 articulations of seven measurements in ALUS display alluded to library benefit quality components (question things). Refer to Table 1

Table 1: ALUS Model items of questionnaire

No	Items
EASY TO ACCESS	
1	Online Library Catalog (OPAC) is easy to access.
2	Library website easy to reach.
3	Library staff easy to access and discussed.
4	Library's collections and services easy to access
5	Library facilities such as reading room, computer lab easy to access.
6	Library information such as pamphlets, brochures, and information is easy to access.
COMPATIBLE SERVICES	
8	Library provide materials that are appropriate to my needs.
9	Library provides the library using in accordance with my needs.
10	Library's opening hours suit to my needs.
11	Library provides reading materials that are appropriate with my requirements.
12	Number of materials that are allowed to borrow is accordance with my needs.
EFFECTIVE SERVICES	
13	Online catalog available to my needs.
14	Library staff is always available during library opening hours.
15	Sufficient number of staff, and ready when I need their help.
16	Library staff is ready to solve my problem when I deal with it.
17	Library provides photocopying services for my use.
18	Library materials are placed on the shelf ready for my use.
19	Directions provided clear and very helpful.
20	Library provide sufficient numbers of computers to access the information I needs.
21	Number of chairs and tables are adequate for me to use.
EFFICIENT SERVICES	
22	Library provides training to use library effectively.
23	Library provides the right services as they promised to you.
24	Library staff respond quickly and immediately when you need it.
25	Collection of books in the library coincides with your needs.
26	Collection of electronic information provided by the library is very effective for your needs.
27	Staff take immediate action on a request when

No	Items
	you needed.
28	Library y offers a collection of well-managed for the purpose of acquiring material back quickly.
RELIABLE SERVICES	
29	Library efficiently respond to the questions and referral services.
30	Library staff understand my required information.
31	Library staff to respond very quickly.
32	Library staff quickly identify the resources I need.
33	Library staff managed to provide assistance to obtain the resources I need.
34	Library staff managed to provide guidance to you how to get the information.
35	Library staff managed to prepare their work within your expected time.
36	Library staff able to cope loan process, as you wish.
RIGHT SERVICES	
37	Online Catalog (OPAC) information provides accurate information regarding collection of library materials.
38	Library staff are able to find information for your needs.
39	Library emphasizes no error (zero error) on the services offered.
40	Library staff provide the correct service the first time and so on.
41	Attitude of the library staff is reliable.
42	Library staff is continuously dedicated to you.
COMPETENCE STAFF	
43	Library staff understand my specific needs and when they promise me on something, they will.
44	Information provided is up to-dated.
45	Correct answer from the library staff.
46	Library provides all services as they disclosed it right.
47	Library provides assistance properly from the beginning until the end of their service.
48	Library staff have enough knowledge to answer your questions.
49	Convince the library staff.
50	Safe interacting with library staff

3.2 Constructing Kano Survey Questionnaire

For each service feature or characteristic, a pair of questions was formulated. The first question concerns the perception of the library user if the service has that feature (functional/positive form of the question), and the second concerns is perception if the library does not provide have that service feature (called dysfunctional/negative form of the question – see Figure 2). The idea how to formulate these questions is using [18]   with a minor modification.

Functional form of the question	If the Online Library Catalog (OPAC) is easy to access.	▪ Very highly dissatisfied ▪ Highly dissatisfied ▪ Neutral ▪ Highly satisfied ▪ Very highly satisfied

Dysfunctional form of the question	If the Online Library Catalog (OPAC) is NOT easy to access.	▪ Very highly dissatisfied ▪ Highly dissatisfied ▪ Neutral ▪ Highly satisfied ▪ Very highly satisfied

Figure 2: Example of Functional and dysfunctional questions in PPAK Kano questionnaire
Source: Matzler, K. and Hinterhuber, H. H. (1998)

3.3 Administration Kano Model

By consolidating two answers (practical/positive type of the inquiry and broken/negative type of the inquiry) in Kano poll, the outcome will be plotted in Kano assessment table (see Table 2) From this table, the administration components can be ordered into five established condition-alluring, one dimensional, must be, uninterested and invert or flawed. For instance, the mix of exceptionally fulfil and profoundly fulfilled will be gathered in Questionable or turn around, the mix of exceedingly fulfil and exceptionally fulfilled assembled in Attractive, the mix of profoundly fulfilled and very disappointed will be gathered as one dimensional.

Table 2 : Kano Evaluation Table

PPAK Service Requirements (Satisfaction)		Dysfunctional/negative form of the question				
		Very highly satisfied (5)	Highly satisfied (4)	Neutral (3)	Highly dissatisfied (2)	Very highly dissatisfied (1)
Functional/positive form of the question	Very highly satisfied (5)	Q	A	A	A	O
	Highly satisfied (4)	R	I	I	I	M
	Neutral (3)	R	I	I	I	M
	Highly dissatisfied (2)	R	I	I	I	M
	Very highly dissatisfied (1)	R	R	R	R	Q

Source: Matzler, K. and Hinterhuber, H. H. (1998)

A= Attractive   O= One-dimensional / Linear
M= Must Be / Expected)   Q/R = Questionable/Reverse
I = Indifferent

4. RESULTS

4.1 Demographic

All questionnaires (500) were returned. Among these questionnaires, the valid numbers only 265 or 53%. Two hundred and thirty five was rejected because of filled out incompletely. Concerning the respondents' demographic or personal information, Table 3 to Table 4 illustrate the frequency distributions and percentage analysis. For example, 46.4% of respondents is Higher Education Student, 29.8% is college/matriculation student 5.6% and 3.2% are secondary student and primary student respectively.

Table 3 : Status Respondent – Education

	Frequency	Percent	Valid Percent	Cumulative Percent
Primary Student	8	3.2	3.2	3.2
Secondary Student	14	5.6	5.6	8.7
College/Matriculation Student	75	29.8	29.8	38.5
Higher Education Student	117	46.4	46.4	84.9
Total	252	100.0	100.0	

Table 4 : Status Respondent - Race

		Freq	Percent	Valid Percent	Cumulative Percent
Valid	Malay	6	2.4	2.4	2.4
	Chinese	15	6.0	6.0	8.3
	Indian	74	29.4	29.4	37.7
	Others	99	39.3	39.3	77.0
	Missing	58	23.0	23.0	100.0
	Total	252	100.0	100.0	

4.2 Kano Evaluation

As discussed above, the categorization of quality attributes consists of a set of positive and negative questions along with comparison on positive and negative questions of cross alternatives of PPAK users. Based on Kano's classification, results of 50 PPAK service quality items were score A (Attractive), O (One Dimension), M (Must Be), I (Indifferent) and Q/R (Questionable / Reserve) in equal to five, four, three, two and one to transform the original data into the form of input data. (see Table 5).

Table 5: Comparison of Kano's classification and value transformed.

Kano's classification.	Value
A - Attractive	5
O - One Dimension	4
M – Must-Be	3
I – Indifferent	2
Q /R – Questionable / Reverse	1

By combining the two answers (functional versus dysfunctional) the PPAK service feature can be classified. The overall evaluation as explained in Table 6. Category A indicating that library features is an attractive PPAK library users requirement from their viewpoint, category O

indicating library feature is proportional (linear impact) to the level of sufficiency or insufficiently, category M indicating that PPAK library features are expected and fundamental to library users, category I means PPAK library users is indifferent to that particular features, category Q/R is stands for questionable result or PPAK library users are satisfied when these features are absent, but they are not satisfied when present.

Table 6 : Kano's classification of PPAK Library Service Quality

No	Items	A	O	M	I	Q/R	Kano's Classification
A. EASY TO ACCESS LIBRARY SERVICES							
1	Online Library Catalog	3	1	5	205	51	Indifferent
2	Website.	5	1	8	181	70	Indifferent
3	Staff.	1	4	3	172	80	Indifferent
4	Collections and services	1	0	14	114	136	Questionable/Reverse
5	Facilities	1	0	10	165	89	Indifferent
6	Information	1	0	13	185	66	Indifferent
B. COMPATIBLE SERVICES							
8	Appropriate materials	3	0	11	149	102	Indifferent
9	Provides library guide	4	1	14	178	68	Indifferent
10	Opening hours	3	1	14	158	89	Indifferent
11	Suitable materials	3	0	9	156	97	Indifferent
12	Number of materials	1	0	10	161	93	Indifferent
C. EFFECTIVE SERVICES							
13	Online catalog	4	0	9	189	63	Indifferent
14	Library staff	2	0	19	158	86	Indifferent
15	Sufficient number of staff	1	2	8	164	90	Indifferent
16	Ready to solve the problem	0	3	19	163	80	Indifferent
17	Photocopying services	2	2	5	165	91	Indifferent
18	Shelving	3	0	12	166	84	Indifferent
19	Directions	0	0	10	172	83	Indifferent
20	Computers	6	0	13	174	72	Indifferent
21	Online catalog	3	0	6	176	80	Indifferent
D. EFFICIENT SERVICES							
22	Provide training	3	0	10	185	67	Indifferent
23	Provide the right services	1	0	6	165	93	Indifferent
24	Respond quickly and immediately.	1	0	7	155	102	Indifferent
25	Collection of books	1	0	4	169	91	Indifferent
26	Collection of electronic information	1	1	8	172	83	Indifferent
27	Immediate action.	1	0	5	162	97	Indifferent
28	Well-managed collections	1	0	5	164	95	Indifferent
E. RELIABLE SERVICES							
29	Efficiently respond to the questions and referral services.	1	0	2	169	93	Indifferent
30	Understand required information.	1	0	4	174	86	Indifferent
31	Respond very quickly.	2	0	7	160	96	Indifferent
32	Quickly identify the resources	5	1	7	151	101	Indifferent
33	Provide assistance	1	0	7	183	94	Indifferent
34	Provide guidance	1	0	12	175	77	Indifferent
35	Prepare their work within expected time.	0	0	6	174	85	Indifferent
36	Loan services	4	0	7	169	85	Indifferent
F. RIGHT SERVICES							
37	OPAC provides accurate information	2	0	2	188	73	Indifferent
38	Availability of library staff.	2	0	4	163	96	Indifferent
39	Emphasizes zero error	1	0	10	173	81	Indifferent
40	Provide correct services	2	0	0	172	91	Indifferent
41	Good attitude	4	0	9	150	102	Indifferent
42	Library staff is dedicated	0	0	10	154	101	Indifferent
G. COMPETENCE STAFF							
43	Understand customer needs	5	1	7	161	91	Indifferent
44	Up to-dated information	0	1	6	165	93	Indifferent
45	Correct answer	1	1	15	164	84	Indifferent
46	Provides all services as they disclosed.	4	1	7	154	99	Indifferent
47	Assist properly	4	1	9	156	95	Indifferent
48	Enough knowledge	2	0	8	158	97	Indifferent
49	Convince the library staff.	0	1	9	162	93	Indifferent
50	Safe	0	1	7	146	111	Indifferent

For example, the feature r attribute 'Online Library Catalog', item 1, attractive value is 3, one-dimensional is 1, must be is 5, indifferent is 205 and questionable or reverse is 51. The functional question for this feature is "If the Online Library Catalog (OPAC) is easy to access" and for the dysfunctional question is "If the Online Library Catalog (OPAC) is NOT easy to access".

After the analyses with the classification technique (functional versus dysfunctional), there are 49 PPAK library service features or items categorized into indifferent quality attributes, and 1 service item is categorized into questionable/reverse. No one is identified as attractive, one-dimensional or must-be.

5. CONCLUSION

This examination utilizes Kano's model to explore PPAK benefit quality necessities. Client needs are comprehended and recognized and audited. The outcomes can furnish PPAK with shutting the holes for various properties (attractive, must-be, one-dimensional, indifferent and questionable/reverse). After experimental examinations, arrangements of refined Kano's two-dimensional quality model in PPAK library benefit quality were distinguished. Useful (fulfillment) and broken (disappointment) on each administration quality is cleared up. System significance succession is made sense of subsequent to understanding the need of conduction on benefit quality with the goal that lessen the time and vitality in change arranging and spare misuse of assets. The Kano's order demonstrates that all PPAK benefit quality elements are delegated Indifferent. The utilization of Kano's model subsequently empowers PPAK to comprehend the distinctive inclinations and necessities.

To additionally think about, this paper might want to recommend a few upgrades. Firstly, due to some limitation such as limited time, resources and manpower the selected sample is based on the convenience sampling method. Thus, for better understanding on the whole ALUS attributes of PPAK library service quality, consideration of geographical differences is highly recommended. In addition, the adoption of stratified sampling method also recommended. Secondly, the items in the survey questionnaire were selected from the academic library instrument. Due to some differences between public library and academic library, the modification of questionnaire for further is suggested.

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