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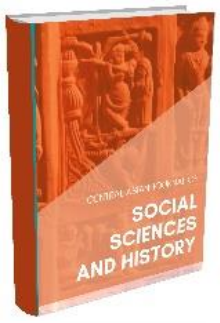

Integration between Service Quality with Refined KANO to Improve Academic Quality at MTI

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Abstract:
Universities require websites for their various academic programs. A source of academic data and services is the study program website. The platform is the online academic service. Magister of Industrial Engineering (MTI) UPN Veteran Yogyakarta academic services adopt this platform paradigm as an automatic service. Independent academic service without regard to time constraints. the standard of this service as a measure for a course of study. As an online academic service, every study program must have a website. The analysis of the integration of Service Quality and Kano yields the characteristics that ultimately become real customer needs. To determine the suggested activities that should be taken, the outcomes of this integration are then converted into the Refined Kano category. Strong traits with Kano's attractive, must-have, and one-dimensional categories are those that turn out to be actual client needs. There are 12 attributes that need to be given priority as true customer needs, according to the findings of the integration of Service Quality and Refined Kano.

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I. INTRODUCTION

The Industrial Engineering Masters Program (MTI) UPN Veteran Yogyakarta (UPNVY) was established in 2006 based on the Decree of the Director General of Higher Education Number 2648/D/T/2006 on July 10, 2006. There are 49 graduates of MTI UPNVY. The MTI Study Program's

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objectives are to set up the MTI program to produce graduates who can compete in the global market, serve through the development, dissemination, and application of Industrial Engineering knowledge, conduct high-caliber research that can be published in national, regional, and international forums, use research findings to help solve industrial and societal problems, and create a teaching and learning environment that upholds ac. At MTI, instruction and learning take place in traditional classroom settings. However, this approach cannot be used in the Covid-19 pandemic. As a result, SPADA Wimaya UPNVY e-learning serves as the platform for online teaching and learning. The academic administration at MTI has also been impacted by the Covid-19 pandemic. Offline academic administration services are extremely challenging to perform.

The MTI website, located at www.mti.fti.upnyk.ac.id, is one place where prospective students and members of the MTI academic community can learn more. The demand for online academic services must increase throughout this pandemic. The MTI website's features haven't been fully empowered in the meantime. A website's development must be carried out effectively and efficiently. As a result, it is essential to investigate the website's service quality demands for academic services. In order to serve as a foundation for developing a website that is both successful and efficient, this study tries to identify the crucial components of the website that need to be improved. The approach used in this study is service quality, which is in line with its goal. However, it is paired with refined KANO in this study. The use of refined KANO is done to increase the accuracy level in fulfilling research goals.

II. LITERATURE REVIEW

State the objectives of the work and provide an adequate background, avoiding a detailed literature survey or a summary of the results. A Theory section should extend, not repeat, the background to the article already dealt with in the Introduction and lays the foundation for further work. A calculation section represents a practical development from a theoretical basis.

III. RESEARCH METHODOLOGY

Setelah melakukan uji validitas dan uji reliabilitas pada kuesioner yang telah diolah, selanjutnya adalah mengolah data menggunakan:

1. Method for Service Quality. The effectiveness of the Master of Industrial Engineering (MTI) UPN Veteran Yogyakarta's services is assessed using this methodology. The Customer Interest Value (NKP) for the Master of Industrial Engineering (MTI) UPN Veteran Yogyakarta is used to gauge the level of service quality. The average value of the important level is known as the value of customer interest (NKP). When an attribute's NKP score is higher than normal, it indicates that customers believe it to be strong. The suggestion is that priority should be given to applying these qualities. When an attribute's NKP value is below average, it indicates that customers believe it to be weak. Consequently, the quality is not priority (Yang, 2005).
2. Kano Method. Determine the Kano category of each attribute by using *Blauth's Formula* (Walden, 1993) as follows:

a) If the total value is (*one-dimensional* + *attractive* + *must-be*) > the total value (*indifferent* + *reverse* + *questionable*), then the grade is obtained from the maximum end of (*one- dimensional*, *attractive*, *must-be*).

b) If the total value is (*one-dimensional* + *attractive* + *must-be*) < the total value (*indifferent* + *reverse* + *questionable*), then the grade is obtained from the maximum end of (*indifferent*, *reverse*, *questionable*).

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c) If the total value is (*one-dimensional* + *attractive* + *must-be*) = the total value (indi*fferent* + *reverse* + *questionable*), then the maximum grade is obtained among all Kano categories, that is (*one-dimensional, attractive, must-be, indifferent, reverse, questionable*).

3. Integration of *Service Quality* and Kano. Refined Kano dimensions serve as the current realization of the integration between the Service Quality results and the Kano technique.

a) Attributes in the Kano attractive category (A) with a strong importance value category are translated as highly attractive attributes, while attributes with a weak importance category attribute are translated as less attractive attributes.

b) Attributes categorized as one dimensional (O) Kano with strong importance value categories are translated as high value-added attributes, while attributes with weak importance value categories are translated as low value-added attributes.

c) Attributes categorized as Kano must-be (M) with strong importance value categories are translated as critical attributes, while attributes with weak importance value categories are translated as necessary attributes.

d) Kano's indifferent (I) category attributes with strong importance value categories are translated as potential attributes, while attributes with weak importance value categories are translated as care-free attributes (Yang, 2005). The combination of the results of the identification of strong and weak attributes from the Service Quality dimension and the results of attribute categorization in the Kano model is the intended integration. The final result of integration is which attributes should be considered, improved, developed, and ignored. The attributes that will be repaired or developed are True Customer Needs from customers in the service at the Master of Industrial Engineering (MTI) UPN Veteran Yogyakarta.

4. True Customer Needs (TCN) Method. The TCN stages are (1) integration of service quality and kano, (2) translation into refined kano, (3) recommendations for improvement for each attribute. Alternative recommendations are (1) to be considered, (2) to be improved, (3) to be prioritized, (4) to be developed, and (5) to be ignored. The final preparation of TCN is obtained from the analysis of customer needs attributes with recommendations that are prioritized or developed.

IV. FINDING AND DISCUSSION

The results of the Service Quality and Kano questionnaires were processed in an integrated manner. This integration aims to determine the proposed recommendations for the Master of Industrial Engineering (MTI) UPN Veteran Yogyakarta on each attribute of service development. service development proposals are grouped into (1) attribute development, (2) attribute development priorities, (3) attribute procurement, and (4) attribute neglect.

The proposed recommendation for the highly attractive category attribute is attribute development. The proposed recommendation for the attribute of the less attractive category is the procurement of attributes but not as a priority. Action recommendations for high value-added and critical category attributes are attribute procurement priorities. As for the attributes of the low-value added and necessary categories, it is the procurement of attributes but not as a priority. The recommended action for potential category attributes is the provision of attributes but not as a priority. The proposed

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recommendation for the care-free category attribute is a waiver. The results of the integration of Service Quality and Kano can be seen in Table 1.

Table 1. Integration of *Service Quality* and Kano

No	Kano Catagory	Value importance	Category attribute	Category of Refined Kano
1	O	4.61	Weak	Low Value-added
2	O	4.84	Strong	High Value-added
3	O	4.76	Weak	Low Value-added
4	O	4.84	Strong	High Value-added
5	O	4.84	Strong	High Value-added
6	O	4.76	Weak	Low Value-added
7	O	4.80	Strong	High Value-added
8	O	4.59	Weak	Low Value-added
9	O	4.86	Strong	High Value-added
10	O	4.77	Weak	Low Value-added
11	O	4.76	Weak	Low Value-added
12	O	4.58	Weak	Low Value-added
13	O	4.81	Strong	High Value-added
14	O	4.82	Strong	High Value-added
15	O	4.82	Strong	High Value-added
16	O	4.83	Strong	High Value-added
17	O	4.83	Strong	High Value-added
18	O	4.82	Strong	High Value-added
19	O	4.82	Strong	High Value-added

The attributes that become true customer needs are obtained from the analysis of the integration of Service Quality and Kano. The results of the integration are then translated into the Refined Kano category to find out the recommended actions that need to be taken. Attributes that become true customer needs are strong attributes with Kano's attractive, must-be, and one-dimensional categories. Based on the results of the integration of Service Quality and Refined Kano, there are 12 attributes that need to be prioritized as true customer needs. The attributes of the needs that are included in the true customer needs can be seen in Table 2.

Table 2. True customer needs.

No	Category of Kano	Category attribute	Category of Refined Kano	Implement ation	Attribute
2	O	Strong	High Value-added	Prioritized	Complete web site features
4	O	Strong	High Value-added	Prioritized	Navigation features on the complete web site
5	O	Strong	High Value-added	Prioritized	Navigation features on the web site are easy to find

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7	O	Strong	High Value-added	Prioritized	Information on appropriate web site content
9	O	Strong	High Value-added	Prioritized	There is an academic question and answer service link
13	O	Strong	High Value-added	Prioritized	Speed in academic transactions
14	O	Strong	High Value-added	Prioritized	Ease of searching for information
15	O	Strong	High Value-added	Prioritized	Personal data information security
16	O	Strong	High Value-added	Prioritized	Quality of attractive web site display
17	O	Strong	High Value-added	Prioritized	Display of very dynamic web site
18	O	Strong	High Value-added	Prioritized	Access links with other academic information systems
19	O	Strong	High Value-added	Prioritized	Download menu for academic forms

Based on customer assessments of the Master of Industrial Engineering (MTI) of UPN Veteran Yogyakarta on true customer needs, 12 attributes of needs were obtained which became the final recommendations for the Master of Industrial Engineering (MTI) of UPN Veterans Yogyakarta. The attributes of needs that become the final recommendation can be seen in Table 3.

Table 3. Final recommendation of true customer needs.

No	Attribute	Recommendation	Value importance
2	Complete web site features	Prioritized	4.84
4	Navigation features on the complete web site	Prioritized	4.84
5	Navigation features on the web site are easy to find	Prioritized	4.84
7	Information on appropriate web site content	Prioritized	4.80
9	There is an academic question and answer service link	Prioritized	4.86
13	Speed in academic transactions	Prioritized	4.81
14	Ease of searching for information	Prioritized	4.82
15	Personal data information security	Prioritized	4.82
16	Quality of attractive web site display	Prioritized	4.83

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17	Display of very dynamic web site	Prioritized	4.83
18	Access links with other academic information systems	Prioritized	4.82
19	Download menu for academic forms	Prioritized	4.82

The integration of Service Quality and Refined Kano produces the required attributes for the Master of Industrial Engineering (MTI) UPN Veteran Yogyakarta. There are twelve attributes of necessary needs, which are recommended actions for each true customer need. Recommendations for action on true customer needs can be seen in Table 4.

Table 4. Recommended actions for each true customer need MTI UPN Veteran Yogyakarta

No	Attribute	Recommendation
2	Complete web site features	Prepare operators who are experts in the field of information technology (IT) to be tasked with checking the completeness of the website features of the Master of Industrial Engineering (MTI) UPN Veteran Yogyakarta.
4	Navigation features on the complete web site	Operators who check the completeness of the features of the Master of Industrial Engineering (MTI) UPN Veteran Yogyakarta web site also add navigation to make it easier for customers or students.
5	Navigation features on the web site are easy to find	Operators who check the completeness of the features of the Master of Industrial Engineering (MTI) UPN Veteran Yogyakarta web site in completing their navigation must consider the ergonomics aspect to make it easier for customers or students to find them quickly.
7	Information on appropriate web site content	Operators who check the completeness of the web site features of the Master of Industrial Engineering (MTI) UPN Veteran Yogyakarta, must also display information content that is appropriate and needed by customers or students only.
9	There is an academic question and answer service link	Operators who check the completeness of the website features of the Master of Industrial Engineering (MTI) UPN Veteran Yogyakarta, also add links related to FAQs and media to provide questions asked from customers or students.
13	Speed in academic transactions	Master of Industrial Engineering (MTI) UPN Veteran Yogyakarta provides large bandwidth and has a reliable server so it is not easy to down.
14	Ease of searching for information	Operators who check the completeness of the web site features and who provide information content that is appropriate and needed by customers or students on the Master of Industrial Engineering (MTI) UPN Veteran Yogyakarta web site, must also validate and test whether the information content is easy to find. by customers or students or not. Then, the results of these trials are used as

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		the basis for further improvements.
15	Personal data information security	1. UPN Veteran Yogyakarta provides free Wi-Fi, so customers don't use other Wi-Fi networks that can be misused by irresponsible people to steal personal data. Usually using fake access points that if someone logs in then their personal data will be stolen. Avoid access points that have the potential to ask for usernames, passwords, and other personal information from customers. 2. The UPN Veteran Yogyakarta provides a legal link, because currently there are a lot of links (links) on behalf of the agency or organization. In some cases, the link can redirect to a fake login page as a trap and steal personal data.
16	Quality of attractive web site display	Operators who check the completeness of the web site's features must also validate and test whether the information content has created interest for customers or students or not. Then, the results of these trials are used as the basis for further improvements.
17	Display of very dynamic web site	Operators who check the completeness of the web site features must also update the latest information on campus so that the information content is really needed by customers or students and maintains its dynamics.
18	Access links with other academic information systems	Operators who check the completeness of the web site features must also provide a menu of access links with other academic information systems for customers or students.
19	Download menu for academic forms	Operators who check the completeness of the web site features must also provide a download menu for academic forms for customers or students.

V. CONCLUSION AND FURTHER RESEARCH

Based on the results of Service Quality, there are twelve strong attributes that are prioritized for implementation in services at the Master of Industrial Engineering (MTI) UPN Veteran.

Based on the results of the integration of Service Quality with Refined Kano, there are twelve attributes of needs that are included in the High Value-Added category. This means that these attributes are prioritized because they have a significant contribution to customer satisfaction Master of Industrial Engineering (MTI) UPN Veteran Yogyakarta

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