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Assessing the Quality of Higher Education Website and Its Influential Factors

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Abstract

This qualitative research is aim to evaluate the quality of Faculty of Science and Technology UIN Imam Bonjol Padang' website. We adopt Webqual 4.0 to measure the quality, then mapping the result into Importance-Performance Analysis Quadrant to obtain which attribute should be prioritized for improvement. The gap between expectation and performance of the website is -0.126 which shows that the website does not meet the visitor expectation yet. Further, four attribute should be prioritized for improvement, namely attractive appearance, appropriate design related to the type of website, information relevance, and conveys a sense of community

Keywords: Website evaluation, Webqual 4.0, Importance-Performance Analysis

I. INTRODUCTION

The Faculty of Science and Technology (FST) is the latest faculty at Universitas Imam Bonjol, Padang. Currently, FST has two majors, namely mathematics and information systems. As a means of delivering information for the academic community and the public, FST has an official website at https://saintek.uinib.ac.id/.

Based on the observations, we found that some content was not yet available, such as organizational structure, management, curriculum. Dummy content from the template also still appeared on website pages. The author then conducted brief interviews with several FST website visitors. Interviewees said that the website's initial appearance does not entirely reflect the FST website as an academic institution. In general, the missing content and some of the dummy content that still appears should diminish the FST website's quality.

Thus, the condition mentioned above became the primary question of this research, how the visitor's perception regarding FST website's quality. To answer this question, we measure the quality of the FST website using WebQual. The measurement results then analyzed using the Importance-Performance Analysis (IPA) method to map which indicator is already good and which indicator should be improved. Therefore, this research aims to provide an overview of the website's quality based on visitor perceptions and the suggested improvement.

II. LITERATURE REVIEW

A. *WebQual*

WebQual is a valid instrument for assessing a website's quality based on end-user or customer perception [1] [2]. The development of WebQual is based on the Quality Function Deployment (QFD) [3], which is explained as "a structured and disciplined process that provides a means to identify and carry the voice of the customer through each stage of product and or service development and implementation" [4]. WebQual has been developed since 2000 [1] and now reach WebQual 4.0 [3]. WebQual 4.0 consists of three categories and 23 questions as follows:

Table III. Webqual 4.0 Variable and Questions

Variable	Code	Question
Usability	US1	I find the site easy to learn to operate
	US2	My interaction with the site is clear and understandable

	US3	I find the site easy to navigate
	US4	I find the site easy to use
	US5	The site has an attractive appearance
	US6	The design is appropriate to the type of site
	US7	The site conveys a sense of competency
	US8	The site creates a positive experience for me
Information Quality	IQ1	Provides accurate information
	IQ2	Provides believable information
	IQ3	Provides timely information
	IQ4	Provides relevant information
	IQ5	Provides easy to understand information
	IQ6	Provides information at the right level of detail
	IQ7	Presents the information in an appropriate format
Service	SI1	Has a good reputation
Interaction	SI2	It feels safe to complete transactions
	SI3	My personal information feels secure
	SI4	Creates a sense of personalization
	SI5	Conveys a sense of community
	SI6	Makes it easy to communicate with the organization
	SI7	I feel confident that goods/services will be delivered as promised

B. *Importance-Performance Analysis*

Importance Importance-Performance Analysis (IPA) is a method to evaluate important attributes and how the attribute performs [5]. IPA is widely used to measure service quality since this method is known for its simplicity [6]. The aim of IPA is to measure relationship between consumers' (in this case is website visitor) perceptions and improvement priority for the product or services. The relationship then depicted to quadrant as follows:

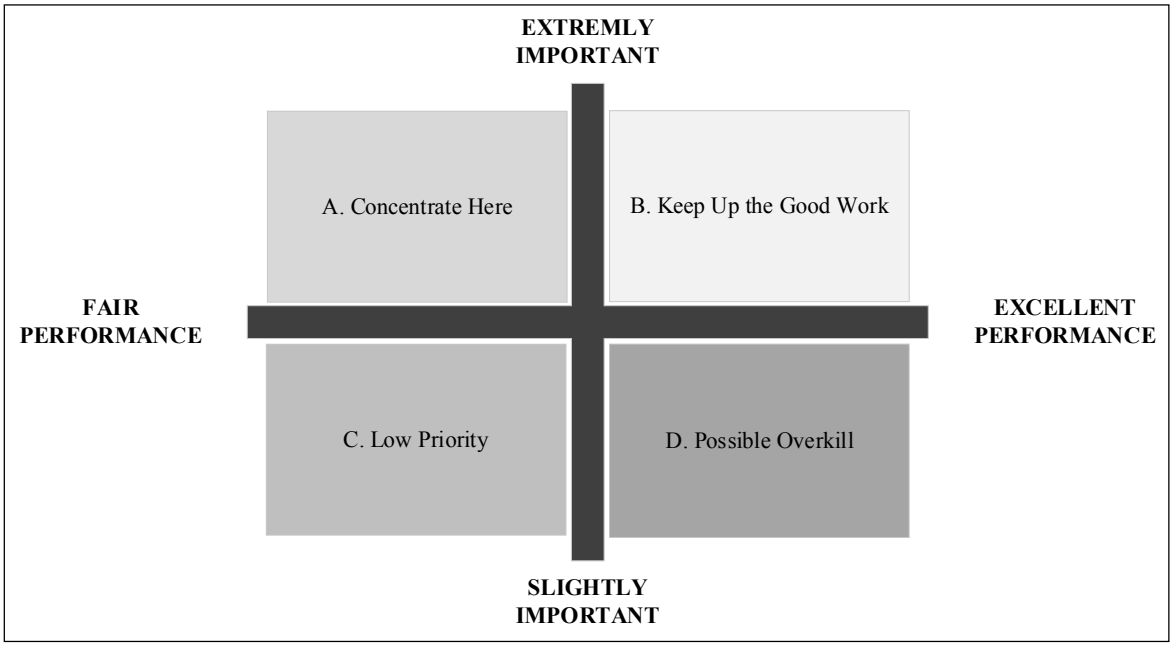

Figure 1 Importance-Performance Analysis (ipa) Quadrant [5]

Referring to Martilla & James explanation [5], the quadrant can be interpreted as follows:

a. Concentrate Here – The service or product provided is important for the customer; however, the delivery is not expected by the customer. Any attribute in this quadrant should be prioritized first.
b. Keep Up the Good Work – The service or product is important for the customer, and the delivery is expected by the customer.
c. Low Priority – The service or product provided is not so important for the customer, and the delivery is not as expected by the customer.
d. Possible Overkill - The customer's service or product is not so important for the customer; however, the delivery is expected by the customer.

IPA Analysis could also show customer satisfying level, which shows whether our product/service is satisfying customer or not. When performance exceed the expectation (P > I), then the user is satisfied [7]. Service attributes which satisfying the customer are in "Keep up the good work" quadrant, while the "Concentrate Here" quadrant shows the service attributes which dissatisfy user [8].

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III. METHODOLOGY

A. *Survei Instrument*

In our research, the instrument consists of two parts. The first part is a questionnaire to obtain demographic data, and the second part is the question to measure website quality. The instrument's question is adopting WebQual 4.0 [3], which then translated to Bahasa Indonesia. Each question's measurement is using Likert Scale from 1 (Very Disagree) to 7 (Very Agree). We then conduct readability test to make sure the respondent could understand the question easily.

B. *Sample and Data Processing*

We deliver the instrument as an online questionnaire to facilitate the distribution of the questionnaire. We then distributed the questionnaire hyperlink to the FST student and lecturer first, then to public. We managed to obtained total of 201 responses. Demographic of our respondents is presented below.

Table IV. Demographic of Respondent

Gender	n	%
Male	64	31.1%
Female	142	68.9%

Age (year)	n	%
Under 17	1	0.5%
17 - 26	176	85.4%
27 - 36	28	13.6%
27 - 46	1	0.5%

Internet Usage Experience (year)	n	%
1 - 3	16	7.8%
4 - 6	62	30.1%
7 - 9	55	26.7%
More than 9	73	35.4%

Internet Usage Frequency (hour per day)	n	%
Under 1	4	1.9%
1 - 3	33	16.0%
4 - 6	52	25.2%
7 - 9	67	32.5%
More than 9	50	24.3%

The data then processed using IBM SPSS Statistic 25 to conduct validity and reliability test. We then calculate the mean of performance and expectation (importance) for each attribute. We also calculate the customer satisfaction level, which resulted from the comparison of performance to importance and the gap between importance and performance.

At last, we use Cartesian diagram to mapping the attribute into IPA Quadrant. Based on data calculation, we then conduct interview with several visitors to gain insight regarding the result of IPA analysis. The interview is conducted via phone call and messaging apps.

IV. ANALYSIS AND DISCUSSION

A. *Validity and Reliability*

We conduct reliability test using Cronbach alpha, which was calculated using IBM SPSS Statistics 25. The result shows that Cronbach alpha for all item is > 0.6, as presented below.

Table V. Reliability Test

	Reliability Statistics	
Variable	***Cronbach's Alpha***	***N of Items***
Importance	.977	23
Performance	.964	23

Instrument validity is tested using Pearson Product Moment. The result shows that all variable is < 0.5 as presented in Table IV below.

Table VI. Validity Test

Correlations

		US1	US2	US3	US4	US5	US6	US7	US8
OQ	Pearson Correlation	.542**	.542**	.640**	.641**	.643**	.725**	.714**	.720**
	Sig. (2-tailed)	0	0	0	0	0	0	0	0
	N	206	206	206	206	206	206	206	206

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

		IS1	IS2	IS3	IS4	IS5	IS6	IS7
OQ	Pearson Correlation	.739**	.721**	.688**	.731**	.728**	.715**	.776**
	Sig. (2-tailed)	0	0	0	0	0	0	0
	N	206	206	206	206	206	206	206

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

		SI1	SI2	SI3	SI4	SI5	SI6	SI7	OQ
OQ	Pearson Correlation	.744**	.737**	.694**	.777**	.795**	.775**	1.000**	1
	Sig. (2-tailed)	0	0	0	0	0	0	0	
	N	206	206	206	206	206	206	206	206

**. Correlation is significant at the 0.01 level (2-tailed).

As the result of validity and reliability test presented above, we could conclude that the instrument for this study is valid and reliable.

B. *Data Calculation*

Based on data obtained, we calculate the mean of importance and performance based on visitor perception for each attribute, as shown in Table 5 below. Importance and performance score respectively for usability score is 5.357 and 5.249; information quality is 5.413 and 5.406; service quality is 5.326 and 5.315. Customer satisfying calculation shows score of 99.217%. The gap between importance and performance overall is -0.126. In detail, gap for usability is -0.126, information quality is 0.007, and service quality is 0.012.

Table VII. Mean of Importance and Performance

		Mean of Importance	Mean of Performance
Usability	US1	5.33	5.07
	US2	5.18	4.79
	US3	5.43	5.82
	US4	5.33	5.28
	US5	5.48	5.12
	US6	5.40	5.00
	US7	5.26	5.11
	US8	5.45	5.81
	Mean	5.357	5.249
Information Quality	IQ1	5.47	5.68
	IQ2	5.55	5.34
	IQ3	5.34	5.40
	IQ4	5.48	4.50
	IQ5	5.43	5.55
	IQ6	5.28	5.64
	IQ7	5.33	5.72
	Mean	5.413	5.406
Service Quality	SI1	5.42	5.57
	SI2	5.26	5.67
	SI3	5.31	4.92
	SI4	5.33	5.25
	SI5	5.37	5.27
	SI6	5.22	5.18
	SI7	5.38	5.34
	Mean	5.326	5.315

C. *Importance-Performance Analysis*

We mapped the attributes for each variable into Cartesian diagram using IBM SPSS 25. Shown that four attributes are in A quadrant and seven attributes are in B Quadrant "Keep Up the Good Work." The detail is presented in Table 7 below.

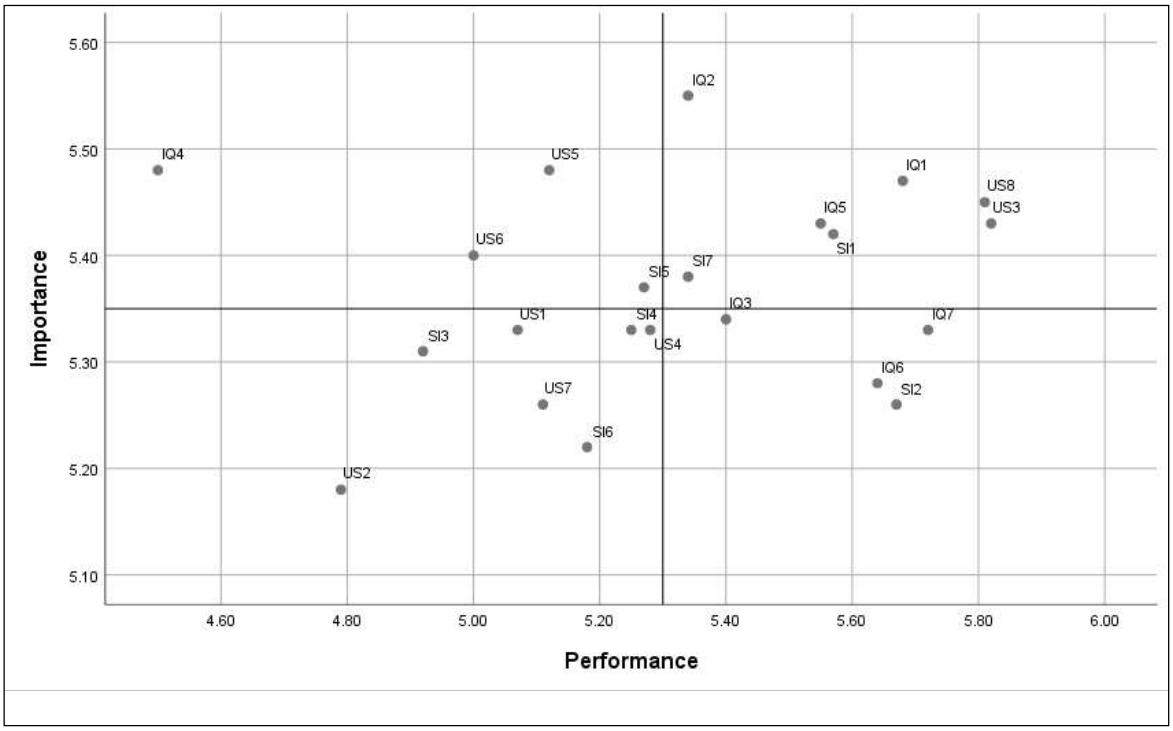

Figure 2. Importance-Performance Analysis Quadrant Mapping

Table VIII. Attributes in Quadrant A and Quadrant B

Quadrant	Variable		Attribute
A. Concentrate Here	*Usability*	US5	The site has an attractive appearance
		US6	The design is appropriate to the type of site
	Information Quality	IQ4	Provides relevant information
	Service Interaction	SI5	Conveys a sense of community
B. Keep Up the Good Work	*Usability*	US3	I find the site easy to navigate
		US8	The site creates a positive experience for me
	Information Quality	IQ1	Provides accurate information
		IQ2	Provides believable information
		IQ5	Provides easy to understand information
	Service Interaction	SI1	Has a good reputation
		SI7	I feel confident that goods/services will be delivered as promised

D. *Discussion and Implication*

Our data calculation shows that customer satisfaction level to FST website is 99.217%. Gap between importance and performance is -0.126. These two measurements could be interpreted as FST website does not satisfy the customer yet since the performance does not meet customer expectation [9].

Further, the IPA analysis also shows that website appearance (US5), website design (US6), relevance of information (IQ4), and sense of community (SI5) should be prioritized to be improved. We then conduct interview with eight website visitors to gain more insight regarding these four attributes.

In general, interviewee said that the design of FST website should be improved. Three interviewees mentioned that the jumbotron of FST website does not convey FST as academic institution which could be linked to a sense of community (SI5). Further, two of interviewees state that the website design is not quite attractive. Six interviewees say that the content on some pages should be completed, such as organization structure, management, majors, student, and others..

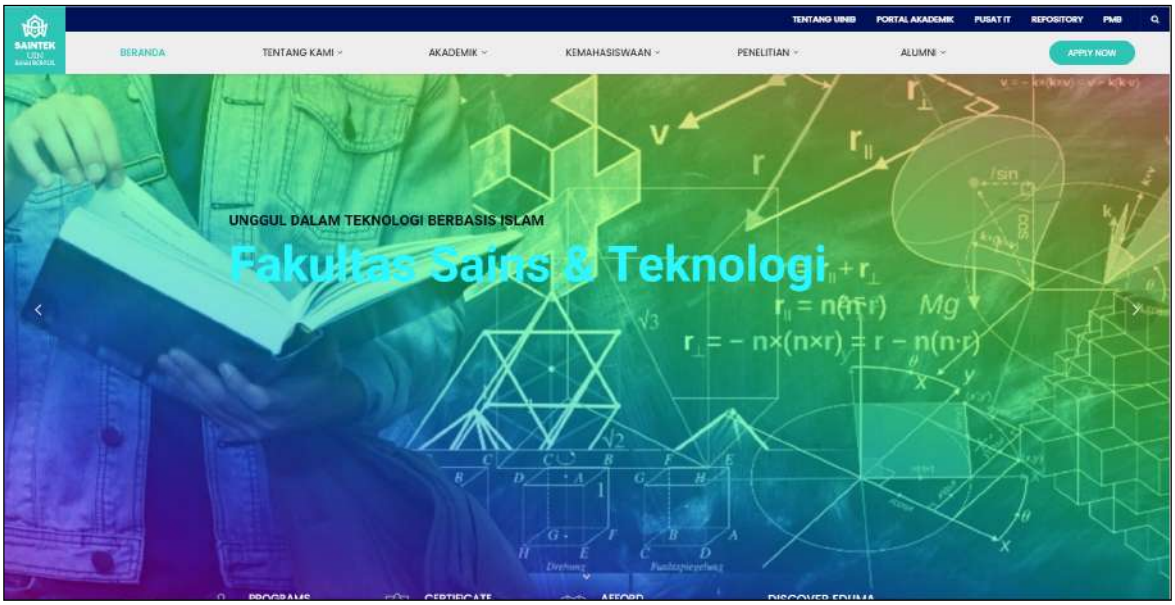

Figure 3. Jumbotron of FST Website

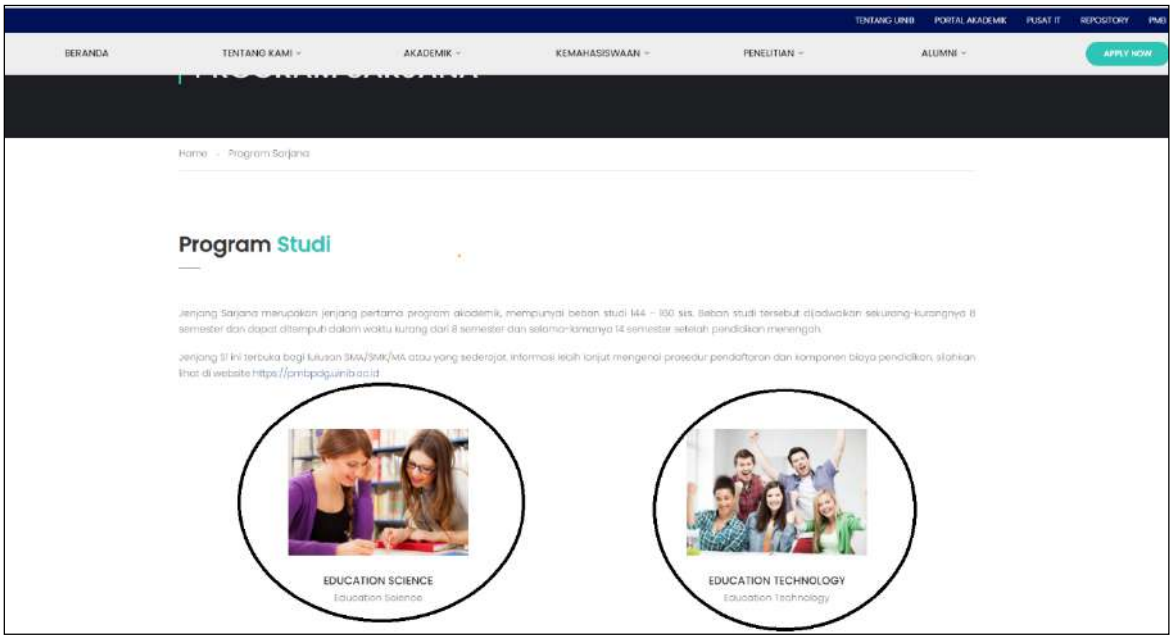

Figure 4. Dummy Content in FST Website

Based on interview and our observation, we found some subject to be improved:

1. FST should prepare some good quality photos to be placed on several pages, such as jumbotron on the homepage, page-title background, and else.
2. Font color at jumbotron should be changed, which is adjusted with the hero image since it is hard to read the text in jumbotron.
3. FST should remove any dummy content in several pages since it reduces the website's quality, especially the relevance of information.

Further, FST should provide content for the following page:

- Organization Structure
- Management
- Major
- Human Resource
- FST Map
- Student Service
- Student Funding

- FST UIN IB Pal
- Student Achievement
- Research
- Community Services
- Journal
- Paper Writing
- Publication
- Alumni Service

V. CONCLUSION

Faculty of Science and Technology (FST) website is not meet visitor expectation yet, shown by the gap that has negative value. IPA analysis shows that there are four attributes that FST should solve immediately to improve customer satisfaction when visiting FST website, which is related to the design and content. However, FST website already has seven attributes that already satisfy visitors, namely: provides accurate information; provides believable information; provides easy-to-understand information; has a good reputation; customer feels confident that goods/services will be delivered as promised.

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