THE USER PERCEPTION OF SWSEUM (SEMANTIC WEB MUSEUM)

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Abstract: The perception of the user is one of the key qualities to measure whether an institution has a good governance and provides good service towards the stakeholders. The development of the Semantic Web for Mpu Purwa Museum was to build a better version of the current website and to give a structure between the many kinds of the artefacts and manuscripts. Thus, it could improve the perception of the user of the website of Mpu Purwa Museum. This research aims to collect the feedbacks from the users about their perceptions on the new version of the website of Mpu Purwa Museum. This research is using a quantitative method and the questionnaire is based on the End-User Computing Satisfaction (EUCS). The instrument to assess the perception of the users about the semantic web of the Mpu Purwa Museum shows that all of the hypotheses are proven right.

Keywords: user perception, museum, information system, digital preservation.

INTRODUCTION

Nowadays, the integration of the tools and technology made the data producing a whole lot easier process. It was the impact of the industrial revolution 4.0 which made the data processing way faster and it made the human see the world differently (Krishnan, 2020). This development is also can be seen in the heavy industries, the increasingly cheap and available sensors made the data collecting much easier for us (Horrell et al., 2020). This means that the Internet is brimming with data and information so that it could make the workload of the human users lighter. Whenever human needs to collect the data, the Internet is the first place they should be referring to. This makes the World Wide Web should be a place where the users get accessibility for the things they seek.

This phenomenon made the users could generate any data or content on their own platforms. This kind of contents is called User-Generated Content (UGC). The users made the information or data available without any pay, sometimes they made it informally or outside the formal and professional institution, and it could be accessed publicly (Daubs, 2020). The importance of this phenomenon is sometimes UGC could help other users to improve their skills and knowledge. However, the negative side of UGC is, it could affect the perception of the users about the brands that could make a mistake in representing themselves on the Internet (Christodoulides et al., 2012).

The perception of the user is one of the key qualities to measure whether an institution has a good governance and provides good service towards the stakeholders. Not all of the Indonesian Government have good quality official website. Most of them have low quality information (Syahroni et al., 2022). However, the quality of the information could influence the public satisfaction in a greater sense (Li, 2021).

Mpu Purwa Museum is one of the state-owned museums that collects and displays about historical artefacts and manuscripts. The Ministry of Culture and Education Indonesia is supervising this museum. The current official website of the Mpu Purwa Museum is unstructured and hard to operate because it does not use Semantic Web. This research

observed how the perception of the user of the current official website of Mpu Purwa Museum and compare it to the restructured version of the website by the researcher [insert sitasi paper sebelumnya].

The needs of restructuring the data from the official website of Mpu Purwa Museum are to improve the quality of the data shown and to make the website more accessible for the users. The development of the Semantic Web for Mpu Purwa Museum was to build a better version of the current website and to give a structure between the many kinds of the artefacts and manuscripts. Thus, it could improve the perception of the user of the website of Mpu Purwa Museum. This research aims to collect the feedbacks from the users about their perceptions on the new version of the website of Mpu Purwa Museum. In the long run, this research could contribute to the improvement of the overall perception of the user of official website of the Indonesian Government.

METHOD

This research is using a quantitative method and the questionnaire is based on the End-User Computing Satisfaction (EUCS). This method was used to measure the user perception of a website (Doll & Torkzadeh, 1988). In EUCS, the user perception would be measured by five main variables: (1) Content, (2) Accuracy, (3) Format, (4) Ease of Use, and (5) Timeliness. Then, the EUCS could conclude the overall satisfaction of the users. However, the basic EUCS model needs to be reinvestigated because of the latest technologies to measure the robustness of the model [8]. Hence, this research will use the enhanced EUCS with some new variables: System Processing Speed and User Interface.

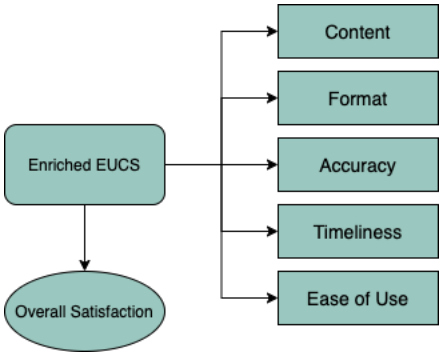

Figure 1. Basic EUCS Model

The new structure of EUCS will categorize the variables of content, accuracy, format, and timeliness in a main category of “Information Quality”. On the other hand, the variables of ease of use, system processing speed, and user interface will be categorized in “System Quality”. Both categories will contribute to the Overall Satisfaction of the users.

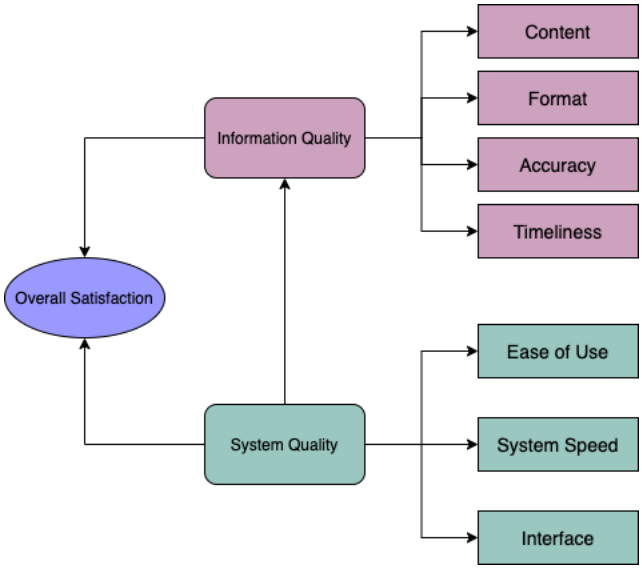

Figure 2. Restructured EUCS Model

Based on the new scheme above, this research would test these hypotheses:

H1. Information Quality positively affects End-User Computing Satisfaction.

H2. System Quality positively affects End-User Computing Satisfaction.

H3. System Quality has a direct and positive effect on Information Quality.

The variables would be asked in a closed questionnaire. The respondents were asked to convey their perception of the website using a Likert scale from 1 (strongly disagree) to 5 (strongly agree).

Table 1. The Questionnaire

Category	Variable	ID	Question
Information Quality	Content	C1	Apakah website http://museummpupurwamalang.org/ telah menyediakan informasi yang Anda cari secara tepat?
		C2	Apakah konten informasi di http://museummpupurwamalang.org/ berhasil memenuhi kebutuhan informasi Anda?
		C3	Apakah website http://museummpupurwamalang.org/ menyediakan laporan yang sangat tepat dengan kebutuhan informasi Anda?
		C4	Apakah website http://museummpupurwamalang.org/ menyediakan informasi yang cukup?
	Format	F1	Apakah tampilan informasi di http://museummpupurwamalang.org/ memiliki format yang tepat?
		F2	Apakah informasi di http://museummpupurwamalang.org/ jelas?
		F3	Apakah informasi di http://museummpupurwamalang.org/ mudah dipahami?
	Accuracy	A1	Apakah website http://museummpupurwamalang.org/ akurat?
		A2	Apakah Anda puas dengan akurasi dari laman http://museummpupurwamalang.org/?
		A3	Apakah informasi yang tertera di laman tersebut telah sesuai (dengan informasi yang seharusnya tertera)?
	Timeliness	T1	Apakah Anda mendapatkan informasi yang dibutuhkan dari website http://museummpupurwamalang.org/ dalam waktu singkat?
		T2	Apakah informasi di website http://museummpupurwamalang.org/ paling mutakhir?

Information Quality		IQ1	Apakah informasi di website http://museummpupurwamalang.org/ membantu Anda?
		IQ2	Apakah informasi di website http://museummpupurwamalang.org/ berkualitas tinggi?
		IQ3	Apakah informasi di website http://museummpupurwamalang.org/ sesuai dengan yang Anda cari?
System Quality	Ease of Use	E1	Apakah website http://museummpupurwamalang.org/ mudah dioperasikan oleh Anda?
		E2	Apakah website http://museummpupurwamalang.org/ mudah digunakan?
	System Speed	S1	Apakah ketika Anda mengakses beranda (Home) laman website membutuhkan waktu sebentar?
		S2	Apakah ketika Anda mengakses laman Koleksi (http://museummpupurwamalang.org/koleksi) membutuhkan waktu sebentar?
		S3	Apakah ketika Anda mengakses laman sebuah koleksi di http://museummpupurwamalang.org/koleksi (membuka detail koleksi) membutuhkan waktu sebentar?
	Interface	I1	Apakah tampilan laman website mudah difungsikan?
		I2	Apakah tampilan laman website memudahkan Anda untuk mencari informasi?
		I3	Apakah tampilan laman website enak dipandang?
System Quality		SQ1	Apakah laman website ini dapat difungsikan sesuai dengan harapan Anda?
		SQ2	Apakah laman website ini telah bekerja sesuai dengan prakiraan waktu yang Anda miliki?
		SQ3	Apakah penggunaan website ini memudahkan Anda dalam mencari informasi?
Overall Quality		OQ1	Apakah laman website ini telah membantu Anda sesuai dengan tujuan awal mengakses laman ini?
		OQ2	Apakah ketika mengakses website ini memiliki waktu pemrosesan yang memuaskan?
		OQ3	Apakah setelah mengakses website ini dapat membantu pemenuhan kebutuhan informasi Anda?
		OQ4	Apakah pengaksesan website ini mudah untuk Anda?

The data would be analyzed using SEM-PLS method so that it could predict the relationships between the variables (Choshaly & Mirabolghasemi, 2019). Furthermore, this method is chosen because it can analyze data with a complicated model (Hair et al., 2019). This method also helps when the research has a variety of latent class techniques that could analyze unobserved heterogeneity (Sarstedt et al., 2017). This research is using SmartPLS 3.0 as the tool to calculate the data because of the need to test the theoretical framework from a prediction perspective (SmartPLS, 2021b).

RESULTS

First, the data is shown in the descriptive statistics on Table 2 below. The descriptive statistics is to organize the data from the respondents. The data is gathered from 30 respondents, the respondents consisted of 53% male and 47% female, the ages are ranging from 15-24 are 40%, 25-40 are 53%, and respondents that aged more than 60 years old are 7%.

Table 2. Descriptive Statistics

Min	1.00
Max	5.00
Mean	3.73
Median	4.00
Std Dev	0.89

Validity Assessments

The indicators then need to be checked its validity and reliability. In this research, the convergent validity assessment is used to confirm the validity of the indicators (Cheah et al., 2018). This step aims to confirm whether the respondents have understood the questionnaire well. The outer loading values of the indicators are listed below in Table 3. The Outer Loading value concluded as valid if the value is more than 0.7. Actually, all of the variables have the outer loading values over 0.7, but in the discriminant validity, the AVE (Average Variance Extracted) are not higher than the corelated indicators. Hence, some of the lowest Outer Loading values need to be deleted to improve the discriminant values.

Table 3. The Outer Loading Values of the Indicators

Indicators	Outer Loading
A1	0.937
A3	0.934
C1	0.944
C4	0.952
E1	0.937
E2	0.946
F1	0.954
F3	0.957
IQ1	0.955
IQ2	0.952
I1	0.911
I2	0.888
I3	0.905
OQ1	0.882
OQ3	0.910
OQ4	0.896
SQ1	0.952
SQ3	0.951
S1	0.895
S2	0.932
S3	0.947
T1	0.954
T2	0.944

Table 4. The AVE Value of Discriminant Validity Assessment

	Accuracy	Content	Ease of Use	Format	IQ	Interface	OQ	SQ	System Speed	Timeliness
Accuracy	**0.935**									
Content	0.868	**0.948**								
Ease of Use	0.875	0.873	**0.942**							
Format	0.852	0.872	0.906	**0.955**						
IQ	0.880	0.857	0.794	0.885	**0.954**					
Interface	0.900	0.878	0.875	0.881	0.889	**0.901**				
OQ	0.829	0.782	0.824	0.865	0.863	0.816	**0.896**			
SQ	0.812	0.825	0.831	0.912	0.846	0.813	0.851	**0.952**		
System Speed	0.867	0.888	0.881	0.922	0.889	0.885	0.877	0.935	**0.925**	
Timeliness	0.896	0.828	0.825	0.869	0.847	0.846	0.772	0.842	0.865	**0.949**

In the Table 4 above, all of the indicators have AVE Values for each indicator are already the highest among the other indicators. Based on (Kock & Lynn, 2012), the AVE Values of each indicator should be higher than all of the correlating indicators the latent variable. This result is achieved after deleting some questions from indicators that have the AVE Values lower than the correlating indicators. The deleted questions could be checked by comparing the missing indicators from Table 3 to Table 1, those questions are A2, C2, C3, F2, IQ3, OQ2, and SQ2.

Reliability Assessment

After each indicator is confirmed its validity, the next step of the data analysis is to assess its reliability using Cronbach's Alpha Coefficient. The Cronbach's Alpha is used to assess whether this particular instrument has internal consistency (Taber, 2018). It means that if this instrument is being used to measure another indicator on different situation would give a relatively same result. The interpretation of the values of Cronbach's Alpha are listed below in Table 5.

Table 5. The Interpretation of Cronbach's Alpha Value

Cronbach's Alpha Value	Interpretation
0.91—1.00	Excellent
0.81—0.90	Good
0.71—0.80	Good and Acceptable
0.61—0.70	Acceptable
0.01—0.60	Non-acceptable

The Cronbach's Alpha Value for each indicator in the instrument of this research have reached their validity because the coefficients are higher than 0.70. The Cronbach's Alpha Values for every indicator in the questionnaire are shown in Table 6 below.

Another coefficient that can be used to check the internal reliability is the Composite Reliability Coefficient. In this research, both coefficients are used just to make sure there is no wide discrepancy between those. The Cronbach's Alpha do not consider the difference in Outer Loading, but Composite Reliability do not assume this (Dolma, 2017).

Table 6. The Reliability Assessment

Indicator	Cronbach's Alpha	Composite Reliability
Accuracy	0.857	0.933
Content	0.887	0.946
Ease of Use	0.873	0.940
Format	0.904	0.954
IQ	0.901	0.953
Interface	0.885	0.885
OQ	0.877	0.924
SQ	0.896	0.951
System Speed	0.915	0.947
Timeliness	0.890	0.948

The next assessment is to confirm whether the statistics model proposed in this research is fit by using Standardized Root Mean Square Residual (SRMR) and Normal Fit Index (NFI). Based on (Hu & Bentler, 1999), the SRMR value of the statistics model is lower than 0.08, the model is fit. On the other hand, the NFI value is in the range of 0 and 1, if the value closer to 1, the indicators are suitable with the model (Tanaka & Huba, 1985). The Model Fit results are shown in Table 7 below.

Table 7. Model Fit Assessment

Assessment	Saturated Model	Estimated Model
SRMR	0.051	0.053
NFI	0.680	0.668

The Saturated Model above is to assess whether there is a correlation between all of the constructs within the model. On the other hand, the Estimated Model aims to assess whether there is a total effect scheme and considering also the model structure. The Estimated Model is more restricted than the Saturated Model (SmartPLS, 2021a).

The R^2 Value is used to confirm whether the indicators (dependent variables) can describe the latent variables. The R^2 Value is ranging between 0 and 1, with the category of 0.75 is substantial impact, 0.50 is moderate impact, and 0.25 is weak. The Table 8 below is the result of R^2 Value of the latent variables in this research.

Table 8. The R^2 Values

Latent Variables	R^2
Information Quality	0.848
System Quality	0.877
Overall Quality	0.796

According to (SmartPLS, 2017), the Path Coefficient will show how much the impact of the value of independent variables towards the value of dependent variable. One of the coefficients is P Values. P Value is a probability statement about the observed sample in the context of a hypothesis, not the testing about the hypothesis (Altman & Krzywinski, 2017). Below is the Path Coefficients of the indicators and latent variables shown in Table 9.

Table 9. The Path Coefficients

Indicators to Latent Variables	T Statistics	P Values
Accuracy -> IQ	1.805	0.072
Content -> IQ	0.812	0.417

Ease of Use -> SQ	0.435	0.664
Format -> IQ	1.140	0.255
IQ -> OQ	**2.649**	**0.008**
Interface -> SQ	0.633	0.527
SQ -> IQ	**0.563**	**0.574**
SQ -> OQ	**2.430**	**0.015**
System Speed -> SQ	5.539	0.000
Timeliness -> IQ	0.088	0.930

DISCUSSION

Based on the elaboration of the result above, there are three steps to assess the validity of the instrument. First, assess the validity of the indicators, then the reliability of the measurement of variables, and last, the relations between the indicators and variables. From the validity assessment, the AVE Values are higher than the corelated indicators after removing some of the indicators coded A2, C2, C3, F2, IQ3, OQ2, and SQ2. Below is the statistics modelling with the Outer Loading value for each indicator.

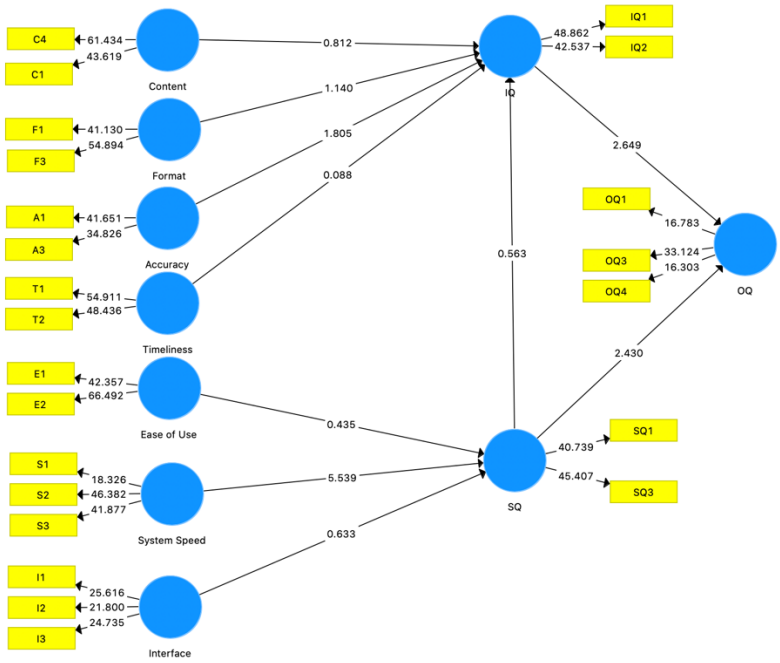

Figure 3. The Final Modelling of the Instrument

The reliability assessment is using Cronbach's Alpha and Composite Reliability Coefficients. The values of both coefficients do not have a wide discrepancy so the indicators could be reused and retained its reliability. It also means that the instrument could be used in similar research or to assess a similar system.

The NFI values showed that the statistics model is already fit to assess the research because it has the value of 0.680 in Saturated Model. It means that the theoretical statistics model could be reapplied to another research in the same manner.

CONCLUSION

The instrument to assess the perception of the users about the semantic web of the Mpu Purwa Museum shows that all of the hypotheses are proven right. The first hypothesis, the Information Quality has positive effect to End-User Computing Satisfaction shown in Table 9, the P Value of the latent variable IQ to OQ is 0.008. If the P Value is less than 0.05, the indicator has a big influence to the latent variable (Vidgen & Yasseri, 2016). The T Statistics Value is higher than 1.96, this could be interpreted that this indicator has a significant influence towards the variable OQ (Overall Quality) or End-User Computing Satisfaction. Thus, the Information Quality has positive effect but insignificant to End-User Computing Satisfaction, the first hypothesis is proven.

The second hypothesis is proven right because the result shows that the T Statistics Value is 2.430 and the P Value is 0.015 (shown in Table 9). It means that the System Quality indicator is affecting the latent variable of End-User Computing Satisfaction positively and significantly.

The last hypothesis is proven wrong, in this pathway, the T Statistics Value is 0.563 (higher than 0.05) so the System Quality variable does not influence the Information Quality significantly even though it influences positively. Hence, the statistics model in this research shows that the perception the user of latest Mpu Purwa Museum is conclusively satisfied.

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