

The Effect of Measurement of User Experience (UX) against the Loyalty Level of Pegipegi Application User

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ABSTRACT

Pegipegi is one of the online travel agents (OTA) operating in Indonesia. In running its business, Pegipegi has two platforms for the community to be able to access its services, namely through websites and mobile applications. Data shows that the majority of people access Pegipegi services through mobile applications. For the services offered, Pegipegi has a high rating. However, this cannot make Pegipegi the most visited OTA by the people of Indonesia. The purpose of this study was to determine whether the level of Pegipegi user loyalty is influenced by the user experience (UX) factor. UX measurements in this study were carried out using the user experience questionnaire (UEQ) method. Measurement data using the UEQ method will later be obtained using Microsoft Excel. Based on the measurement results, the results will be associated with indicators of the level of loyalty.

Key words : User experience, online travel agent, user experience questionnaire, pegipegi.

1. INTRODUCTION

In recent years, the trend of digitizing various types of service or product sales has formed a new trend. The availability of data increase very significant because of the ease of accessing the data and the internet development is increasing year by year [11]. Dissemination of information using various data is felt by everyone [12]. Starting from the emergence of e-commerce, the emergence of application-based use of public transportation services to the presence of branches of e-commerce, namely online travel agents (OTA).

OTA is a travel agent who acts as a medium for online promotion and sales through the website [1]. Not only websites, now many OTAs also launch mobile applications. Examples of OTA include Traveloka.com, Tiket.com, Pegipegi.com, Agoda.com, and others. Each offers unique advantages such as promos, ease of transactions, payment method options, and others. For example, mobile applications are becoming more popular year by year thanks to advances in computer technology [10]. Through observing the services

offered on three OTA platforms in Indonesia (Traveloka.com, Tiket.com, and Pegipegi.com), they offer a variety of services. Pegipegi.com is an OTA that has been operating since 2012. Pegipegi is a company that serves hotel bookings, airline tickets and train tickets through its website, as well as free applications on Android and iOS. According to the survey, precisely Pegipegi.com ranks 4th (2.97 million visitors), under Traveloka.com (15.75 million visitors) Tiket.com (5.56 million visitors), and Booking.com (3, 97 million visitors) [2]. Data obtained from a survey of the Indonesian Internet Service Providers Association (APJII) on internet user penetration in Indonesia in 2018 shows that there were 171.17 million people (64.8% of the total Indonesian population) internet users in Indonesia. The largest number of internet users is spread across the island of Java by 55.7% of the total internet users. In Java, the most significant percentage ratio of internet users to non-internet users is in DKI Jakarta Province.

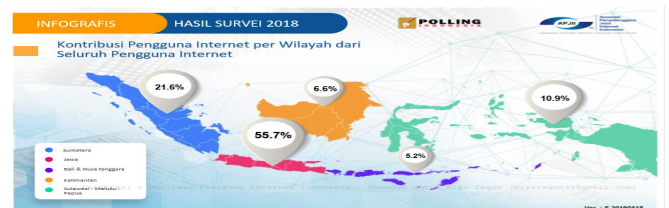


Figure 1 : Resource: APJII Survey Result

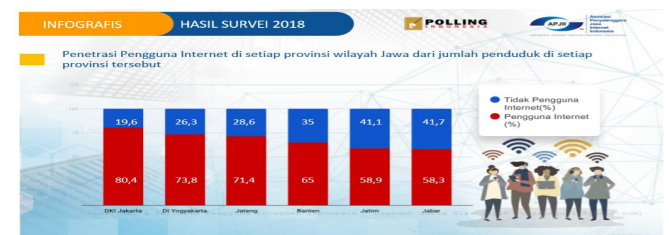


Figure 2 : Resource: APJII Survey Result

Based on the case, the fact shows that the majority of Pegipegi.com is accessed through a mobile application, and the majority of visitors give a good rating for the Pegipegi.com mobile application. So, in this study what will

be discussed is the influence of user experience in public shopping interest in Pegipegi.com mobile application.

2. LITERATURE STUDY

2.1 Travel Agent

Online travel agents (OTA) provide points of contact through the World Wide Web (WWW) to enable customers to search for flights and fares accordingly and make choices, which are then ordered and ticketed by OTA.

2.2 User Experience

User Experience (UX) has various definitions. Of the many definitions of UX, it is very difficult to determine a common definition. According to Heckert and Desmet, there are 3 components of UX: aesthetic pleasure, attribution of meaning, and emotional response. Aesthetic pleasure is defined as a product that can satisfy the five senses of the person who uses it. Attribution of meaning indicates that a product can be digested personally by its users through cognitive processes such as interpretation, memory recall, and associations. In the emotional response component, a product is reviewed from affective phenomena related to its users such as emotions, love and disgust, fear and desire, pride, despair, etc. [3]

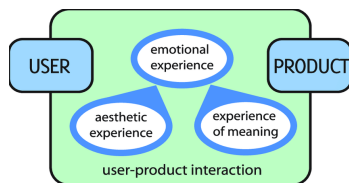


Figure 3 :Resource: [3]

2.3 Measurement of User Experience

The UX measurement method is still being debated. There is no measurement method that is considered the most correct because the process of measuring a UX can be reviewed from many aspects [4]. No one agrees with the measurement of UX, but UX can be measured in many ways [5]. Emerging varied UX measurement methods. Variations can occur because UX measurements refer to different aspects of the measurement.

2.4 User Experience Questionnaire (UEQ)

The making of UEQ is based on the need for UX measuring of the object. Referring to the debate about UX can be measured in many ways [5]. UEQ must enable users to express the feelings, impressions, and attitudes that arise when experiencing the product under Investigation in a very simple and direct way. Data collection using the UEQ method can be done by filling out on paper or online [6].

3. RESEARCH MODEL

3.1 UX Research Model

In UX research using the UEQ method there are several aspects that will be measured. There are 6 aspects of measurement with 26 indicator items. Figure 3.1 illustrates the six aspects along with 26 indicator items used in the UEQ method. In UX research using the UEQ method there are several aspects that will be measured. There are 6 aspects of measurement with 26 indicator items. Figures 3.1 and 3.2 illustrate the six aspects along with the 26 indicators used in the UEQ method.

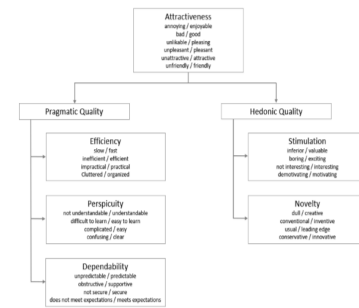


Figure 4 : Resource: UEQ Handbook

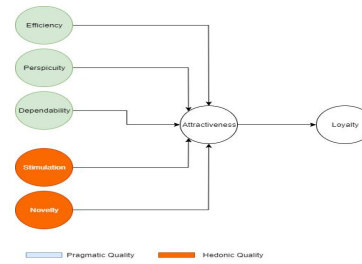


Figure 5 : Resource: UEQ Handbook

UEQ uses seven answer scales for each indicator. The seven scales are represented by numbers -3 to +3. -3 represents the most negative answer, 0 represents the neutral answer, and +3 represents the most positive answer. (Rauschenberger, Schrepp, Cota, Olschner, & Thomaschewski, 2013). From the seven variables in the research model, there are 5 independent variables which are divided into two parts, namely Pragmatic Quality and Hedonic Quality.

1. *Pragmatic quality* indicates how goal-oriented a product is [7]. *Pragmatic quality* consists of 3 aspects / variables such as:
 - *Efficiency*: indicates the speed and accuracy of interaction in the application.
 - *Perspicuity*: indicates the ease of a product to be understood and studied.

- *Dependability*: indicates whether the user can master the product
- 2 *Hedonic Quality*: *Hedonic quality* can be interpreted as the ability of a system to support the achievement of certain goals. Unlike pragmatic quality which is goal-oriented, hedonic quality is a non-goal-oriented aspect [7]. Hedonic quality can be divided into 2 aspects / variables, such as:
 - *Stimulation*: *Stimulation* indicate whether using the product is fun and motivating or not [6].
 - *Novelty*: *Novelty* indicate whether an innovative and creative product or not. Whether a product can invite user attention [6].

Based on the variables in pragmatic quality and hedonic quality, the dependent variable is attractiveness. Attractiveness indicates user interest in the product as a whole [8]. From the attractiveness variable, in this study we want to examine is there a relationship between attractiveness that is influenced by the five variables that exist in the UEQ method with loyalty.

3.2 Method of collecting data

In this study, there are 2 methods of data collection which are carried out such as;

- Literature Study
Sources of information obtained from articles on the internet, journals and conference papers, and books
- Questionnaire.
The questionnaire will be distributed through Google Forms online media. Questionnaires will be distributed to respondents according to sample results obtained from sampling technique calculations based on the study population.

3.3 Data Analysis

The user experience measurement method using UEQ method already has its own analysis tool. Tool for analyzing the results of answers from questionnaires that have been distributed in the form of an Excel folder. Each question from the questionnaire distributed had links to the six aspects that will be tested by the UEQ method.

3.4 Determine Sampel

In determining the number of samples in this study, sample calculations used the Yamane formula. The Yamane formula can be used when the population is known in number [9]. Following is the elaboration of the Yamane formula:

$$n = \frac{N}{1 + N(e)^2}$$

Legend:

n = Sample

N = Population

e = (sampling error)

The error rate of the sample used in this study was 10%. With a known population of 8,415,974 people, it can be determined the number of samples that need to be taken in this study are as follows::

$$n = \frac{8,415,974}{1 + 8,415,974(0,1)^2} = 99,99$$

The results of calculations using the Yemen formula are 99.99 samples. With these results, then rounding up to that is equal to 100 samples.

3.5 Hypothesis

The first hypothesis is that the results of measuring user experience on the Pegipegi.com application using the UEQ method have good results (positive answers) proving that the Pegipegi.com application has a good user experience.

The second hypothesis is the results of measuring user experience on the Pegipegi.com application using the UEQ method has negative results proving that the Pegipegi.com application has a poor user experience.

4. RESULT AND DISCUSSION

4.1 The Tools

User Experience Measurement (UX) using the User Experience Questionnaire (UEQ) is analyzed using Microsoft Excel software and can be downloaded at the website <https://www.ueq-online.org/>.

4.2 Measurement of User Experience Questionnaire (UEQ) on Pegipegi Applications

After collecting data through an online questionnaire, the results of data collection can be downloaded in the form of Microsoft Excel documents. The results of data collection are entered into the "Data" sheet. On the "Data" sheet there are 26 columns representing indicators on UEQ and 136 rows representing 136 respondents.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
4	5	7	6	1	1	2	5	6	1	1	6	2	6	6	6	6	1	2	1	7	2	2	1	2	1	7
5	6	7	7	1	2	4	6	6	4	7	6	2	6	4	2	5	2	4	1	7	1	3	4	1	2	4
6	4	7	1	3	1	4	5	2	1	7	7	1	5	5	6	6	1	4	4	4	4	1	1	4	3	7
7	7	7	4	1	1	6	7	5	1	4	5	1	7	7	6	7	1	1	1	7	1	1	1	1	1	6
8	6	6	1	3	3	5	6	4	4	3	5	1	6	4	4	6	1	4	1	7	1	2	1	1	1	7
9	7	7	1	1	1	7	7	7	1	7	7	1	7	7	7	7	1	1	1	7	1	2	1	1	1	2
10	6	5	4	4	5	3	3	4	4	6	4	3	5	5	3	4	4	3	3	5	3	2	4	3	3	3
11	7	7	1	1	1	7	7	7	1	3	7	1	6	7	5	7	1	4	1	5	2	4	4	3	3	7
12	6	5	4	3	3	6	5	4	2	6	7	2	6	7	2	3	1	2	1	5	2	3	3	2	3	3
13	4	5	1	1	1	6	5	4	1	6	6	1	7	7	7	6	1	2	3	6	1	2	1	1	2	7
14	5	6	4	2	1	4	4	4	2	4	6	2	6	6	5	6	2	4	2	6	3	2	2	4	2	5
15	5	4	5	5	5	4	5	4	3	3	5	3	5	5	5	5	3	3	4	4	3	4	3	3	4	3
16	3	5	5	2	2	4	4	4	4	3	4	5	3	4	4	4	5	4	4	3	4	3	4	3	4	3
17	7	7	1	1	1	7	7	7	1	1	7	1	7	7	7	7	1	1	1	7	1	1	1	1	1	1
18	6	5	1	1	1	6	6	7	2	2	6	1	7	6	6	6	1	1	6	2	1	1	1	1	2	6
19	7	7	2	2	2	6	6	6	2	2	6	2	6	6	2	6	2	2	2	7	2	2	7	2	2	2
20	5	5	2	2	2	5	5	4	2	4	5	2	5	5	5	5	2	2	2	5	2	3	2	3	2	5
21	7	7	1	1	1	7	6	6	1	1	7	1	7	6	6	7	3	1	1	7	2	1	1	1	1	6
22	6	6	4	4	4	6	6	5	4	4	4	4	5	4	5	3	4	3	5	4	2	4	2	4	3	6
23	7	7	3	5	3	7	7	7	1	3	7	1	7	7	7	5	5	5	5	5	5	5	5	6	6	5
24	3	4	4	1	4	4	3	4	3	4	3	4	4	4	3	4	4	4	4	5	4	5	4	5	4	4
25	6	5	4	3	1	4	4	3	3	4	6	3	6	5	4	6	3	2	3	5	3	1	2	2	1	5

Figure 5 : Input Data Result

Data entered on sheet "Data" still uses a scale of 1 to 7. UEQ uses a scale of -3 to 3. After all data has been entered on the sheet "Data", the data will automatically be converted according to the scale used by the UEQ method on sheet "DT".

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
4	5	7	6	1	1	2	5	6	1	1	6	2	6	6	6	6	1	2	1	7	2	2	1	2	1	7
5	6	7	7	1	2	4	6	6	4	7	6	2	6	4	2	5	2	4	1	7	1	3	4	1	2	4

Figure 6 : Sheet "Data"

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
4	1	3	-2	3	3	-2	1	2	3	3	2	2	2	2	2	2	3	2	3	3	2	-2	3	2	3	3
5	2	3	-3	3	2	0	2	2	0	-3	2	2	2	0	-2	1	2	0	3	3	3	-1	0	3	2	0

Figure 7 : Sheet "DT"

To get the results of the data as in the sheet "DT", the formula can be used:

**Number of Interval 1 to 7
in Sheet "Data" - 4 = Result of Data**

Example calculation of data conversion on sheet "Data" into data on sheet "DT". In Figure 4.17 the answers from the first respondent for the first indicator are "5". Enter the number "5" into the formula then minus by 4.

5 - 4 = 1

Based on the calculation of the formula, the number "1" will be obtained as a result of the data in the sheet "DT". In the sheet "DT" also displayed the average value of respondents' answers to one variable. The average number of respondents' answers to one variable is obtained from the calculation of each indicator from one variable using the formula:

Numbers of indicator / Numbers of questions from one
variable = average variable number

Scale means per person					
Daya tarik	Kejelasan	Efisiensi	Ketepatan	Stimulasi	Kebaruan
2.00	2.50	1.75	2.50	1.00	1.50
1.67	2.75	0.50	2.25	1.00	-2.00
1.17	1.25	0.75	1.00	1.00	1.25
3.00	3.00	1.50	2.00	2.75	1.00
2.17	2.00	1.00	1.75	1.00	1.75
2.83	3.00	1.75	3.00	3.00	1.50
1.00	0.75	-0.25	0.25	-0.50	-1.00
2.33	2.50	1.00	3.00	2.25	2.00
1.50	1.50	0.75	2.25	1.50	-1.25
2.17	2.50	1.50	1.50	2.00	1.75
1.50	1.75	1.00	1.50	0.75	0.50
0.83	0.00	0.00	0.50	0.25	0.25
0.33	1.00	0.00	0.50	0.50	0.00
3.00	3.00	1.50	3.00	3.00	3.00
2.33	2.25	1.00	2.75	2.50	2.25
2.17	2.25	0.00	2.00	2.00	0.00
1.33	1.50	1.00	1.25	1.50	1.00
2.67	2.75	1.50	2.25	2.75	2.50
0.67	0.75	-0.25	0.75	1.00	0.75
1.33	1.00	1.25	1.00	1.50	1.50
-0.33	0.50	0.25	-0.25	-0.25	0.00
1.83	1.25	0.25	0.75	1.25	0.25
1.17	0.25	-0.00	0.00	0.75	1.50

Figure 8 : Average Value of Respondent

4.3 Verifying the Validation

Furthermore, after entering the data the respondent's answer is to check whether all data that has been entered are suitable for processing, can be seen in the sheet "Inconsistencies". The UEQ Guidelines suggest not to include respondents' answers that have a value "Critical?" ≥ 3. Of the 136 respondent data answers that have been entered.

AC	AD	AE	AF	AG	AH	AI
Daya tarik	Kejelasan	Efisiensi	Ketepatan	Stimulasi	Kebaruan	Critical?
		1		1	1	3
		1				1
		1	1		1	3
		1				1
		1				1
		1			1	2
						0
						0
1		1			1	2
		1				1
						0
		1				1
		1			1	2
		1				0
		1				1
1	1	1	1	1		5
		1				1
1	1	1		1		3
		1				1
		1				1
		1			1	2
1	1	1			1	2

Figure 9 : Sheet "Inconsistencies"

To find out the UEQ measurement standards, a standard check is made on the "Benchmark" sheet. UEQ classifies five standard categories per variable there are:

- *Excellent:* Below 10% the standard value is better than the value of the respondent's answer.
- *Good:* 10% the standard value is better than the value of the results of the respondents' answers and 75% of the standard values are worse than the value of the results of the respondents' answers.

- *Above average*: 25% the standard value is better than the result of the respondent's answer and 50% the default value is worse than the value of the respondent's answer.
- *Below average*: 50% the standard value is better than the result of the respondent's answer and 25% the standard value is worse than the value of the respondent's answer.
- *Bad*: Under 25% the default value is worse than the value of the respondent's answer.

4.4 The Result

Based on the measurement results listed on the "Result" sheet, there are no variables that have a value of less than -0.8. In the case of Pegipegi application, negative evaluation was not found in all variables.

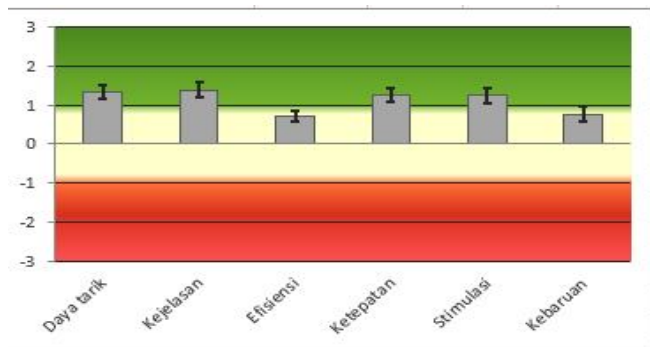


Figure 10 : Measurement Result

The efficiency variable gets the worst value on the "Result" and "Benchmark" sheets. The efficiency variable has 4 indicators. The four indicators are:

1. Fast / Slow
2. Inefficient / efficient
3. Impractical / practical
4. Cluttered / organized.

From the four indicators, which have the worst response that causes the efficiency value of the Pegipegi application to be reduced is impractical.

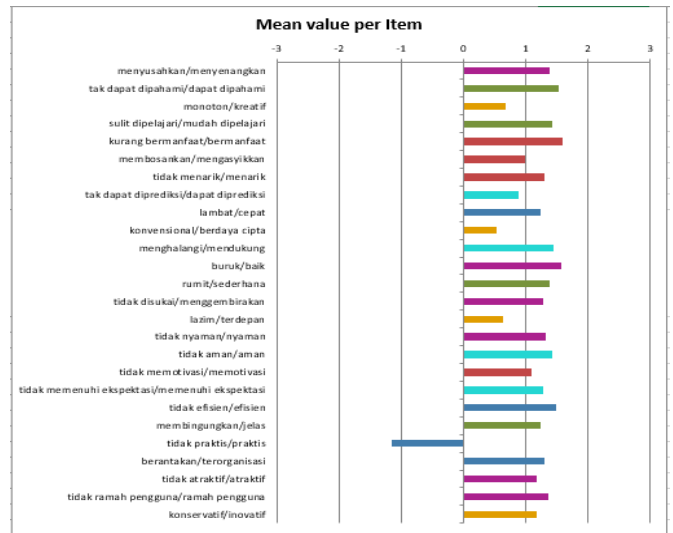


Figure 11 : Average Scale per Indicator

Based on the results on the sheet "Result" and "Benchmark", the interpretation of the measurement of the Pegipegi application using the UEQ method is that respondents do not feel the Pegipegi application is a very good application in terms of user experience, but still acceptable.

4.5 Discussion and Result of Variable Loyalty

The first question, as many as 38 respondents (27.9%) answered the sixth option and followed by 32 respondents (23.5%) answered the fifth option. While the sixth and fourth options were chosen by 29 respondents (21.3%). There are 6% who answered besides this option.

The second question, 37 respondents (27.2%) chose the fourth option, followed by 32 respondents (23.5%) chose the fifth option, 26 respondents (19.1%) chose the sixth option, and 25 respondents (18.4%) chose the seventh option. As many as 11.8% answered in addition to the option.

The third question, 34 respondents (25%) chose the seventh option, followed by 32 respondents (23.5%) chose the sixth option, 30 respondents (22.1%) chose the fourth option, and 29 respondents (21.3%) chose the fifth option. 8.1% is otherwise

The fourth question, as many as 39 respondents (28.7%) chose the sixth option, followed by 33 respondents (24.3%) chose the fifth option, and 28 respondents (20.6%) respondents for the fourth and seventh options respectively. 5.8% is otherwise

The fifth question, 32 respondents (23.5%) chose the sixth and seventh options, followed by 31 respondents (22.8%) chose the fifth option, and 28 respondents (20.6%) chose the fourth option. The remaining 9.5%.

The sixth question, as many as 33 respondents (24.3%) chose the fourth option, followed by 24 respondents (17.6%) chose

the fifth option, and 21 respondents (15.4%) chose the seventh option. The second, third, and sixth options were each chosen by 17 respondents (12.5%). There are 7 respondents (5.1%) remaining.

The user experience questionnaire (UEQ) method and adding the loyalty variable to find out if there is an influence between the results of UEQ's measurement and loyalty, is carried out an analysis. The results show that the Pegipegi application is not a very good application, but can still be accepted by respondents. This is like directly proportional to the results of the answer from the variable loyalty. Of the six indicators of loyalty variables, there are only 2 indicators that get a value of 7 (strongly agree) as the most value. A value of 7 on both indicators is also not superior to the number of more than 3 votes. This can be interpreted that respondents are not fully loyal to the Pegipegi application

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