PARADIGMA

The Method User Experience Questionnaire Analysis of Identitas Kependudukan Digital Application

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ARTICLE INFORMATION

ABSTRACT

User Experience (UX) becomes important to explore and fulfill the needs for developing user-focused applications or products. The problems that exist to measure the level of user experience in the Digital Resident Identity (IKD) application and complaints submitted by users tend to lead to system and service quality problems in the IKD application. Then research purposes are assessed to evaluate the extent to which users can utilize and interact with the application. The method used by researchers is the User Experience Questionnaire (UEQ). UEQ is a widely used scoring methodology used to quantitatively measure user experience by administering a questionnaire to individuals that measures their subjective experiences and perceptions. Variables in UEQ, namely: efficiency, perspicuity, dependability, novelty, stimulation, and interestingness. The evaluation results of user experience in IKD applications using UEQ showed that there were 5 variables that received positive evaluation results, including attractiveness variables (mean 2.14), clarity variables (perspicuity) (mean 1.725), efficiency variables (efficiency) (mean 1.725), accuracy variable (mean 1.525), and stimulation variable (mean 1.475). Whereas the novelty variable (mean 0.602) gets neutral evaluation results. From these results it can be used by IKD application developers to improve the user experience (user experience) of IKD applications on novelty variables by improving the appearance of applications that are more creative, inventive, and also cutting edge. The developer can pay attention to the recommendations that have been presented in this study. Parties who wish to conduct further research can use other evaluation methods such as Heuristic Evaluation.

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INTRODUCTION

The field of information technology in Indonesia is experiencing rapid progress with a focus on public services. One example is the Directorate General of Population and Civil Registration which created the Identitas Kependudukan Digital (IKD) application as an effort to facilitate access to population information for residents. This application was built using a digital technology approach and integrated with a data processing mechanization system to support administrative activities. With the IKD, the government seeks to provide public services that are fast, effective and on target (Haryani & Puryatama, 2020).

Although IKD is available for easy download, there are challenges associated with using this application. Some users tend to complain about system and service quality issues, such as low-resolution viewing of documents. In addition, the lack of socialization regarding how to use the application also

caused some users to feel uncomfortable and less interested in using the IKD. Therefore, it is important to pay attention to user experience (User Experience / UX) from the start of application development so that the needs and emotions of users are properly met. User discomfort when interacting with the application can be a sign of failure in its use (Henim & Sari, 2020). So by analyzing the IKD application, the main goal is to choose an optimal design that guarantees the development of software development that is accurate and effectively meets user requirements (Paredes & Hernandez, 2017)

In order to measure the level of user experience in IKD applications, researchers used the User Experience Questionnaire (UEQ) method. This method has been widely used as a user experience evaluation tool because its aim is to measure user experience quickly and directly (Santoso, Schrepp, Yugo Kartono Isal, Utomo, & Priyogi, 2016). UEQ has a data analysis tool that allows easy comparison of the experience level of each respondent, thereby increasing the efficiency of research time because there is no need to do calculations manually. Therefore, research using the UEQ method can provide time efficiency because there is no need to do calculations manually and makes it easier for developers to know the application design plan (Mochammad Aldi Kushendriawan, Harry Budi Santoso, Panca O. Hadi Putra, & Martin Schrepp, 2021; Putra, Kartini, Aditama, & Tahalea, 2021).

RESEARCH METHOD

This study uses a quantitative methodology to assess user experience in the IKD application. The aim of this research is to identify variables that get a good response from users and variables that require further quality improvement. Descriptive statistical methods were used to analyze the data obtained for five months, from March to July 2023. Data collection was carried out through an online questionnaire survey with Google Forms which was distributed via social media such as Instagram and WhatsApp. The number of respondents selected was 100 people from a population of 36,140 active users of the IKD application in Central Jakarta. This study uses a purposive sampling approach to ensure that the selected sample meets predetermined criteria, namely IKD application users who are at least 17 years old and domiciled according to e-KTP in

Central Jakarta. The following is a picture of the research flow chart which can be seen in Figure 1.
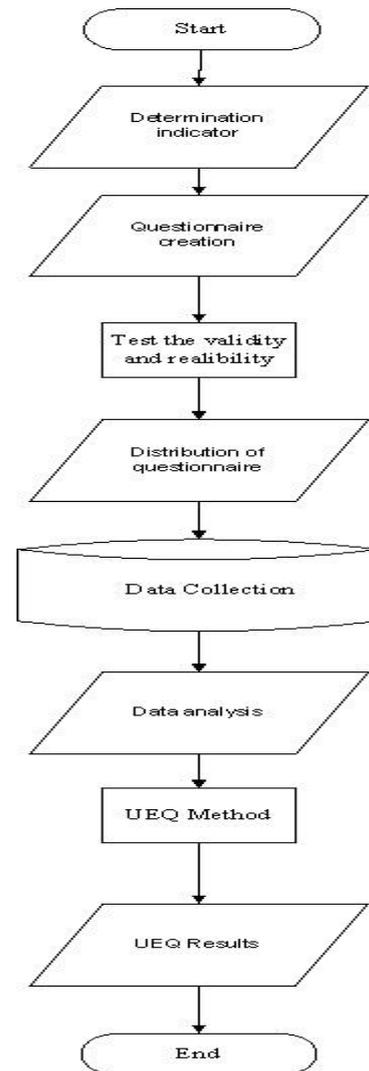
Fig. 1 UEQ Method Research Flowchart

From Figure 1 it can be explained the steps for the results of the assessment were obtained from the measurement of the User Experience Questionnaire (UEQ).

In analyzing the data, the following indicators are needed in the research (Wijaya, Santika, Iswara, & Arsana, 2021):

Table 1. IKD Application Variables and Indicators

Variable	Indicator		Code
Attractiveness	Troublesome	Pleasent	ATR1
	Good	Bad	ATR2
	Dislike	Exhilarating	ATR3
	Uncomfortable	Comfortable	ATR4
	Attractive	Not attractive	ATR5
	User friendly	Not user friendly	ATR6
Perspicuity	Incomprehensible	Understandable	PEP1
	Easy to learn	Hard to learn	PEP2

Variable	Indicator		Code
	Complicated	Simple	PEP3
	Clear	Confusing	PEP4
Efficiency	Fast	Slow	EFI1
	Not efficient	Efficient	EFI2
	Impractical	Practical	EFI3
	Organized	Untidy	EFI4
Dependability	Unpredictable	Predictable	DED1
	Obstruct	Support	DED2
	Safe	Not safe	DED3
	Meet expectations	Did not meet expectations	DED4
Stimulation	Beneficial	Less Helpful	STM1
	Boring	Exciting	STM2
	Not attractive	Attractive	STM3
	Motivating	Not Motivating	STM4
Novelty	Creative	Monotone	NOL1
	Inventive	Conventional	NOL2
	Common	Front	NOL3
	Conservative	Innovative	NOL4

In table 1 there are indicators for each variable that will be tested using the UEQ method. Where respondents can choose these indicators according to what they feel in the application used.

After identifying the relevant indicators, the next step is to develop a questionnaire based on the indicators based on the UEQ items (Schrepp, Hinderks, & Thomaschewski, 2017), which will be distributed to the research sample. Before the questionnaire is actually distributed, the questionnaire must be tested using validity and reliability tests to ensure that the questionnaire can accurately measure what you want to study. The validity test will measure the extent to which the questionnaire reflects the concept being measured, while the reliability test will measure the consistency of the results obtained from the questionnaire (Sahir, 2021).

After the questionnaire is declared valid and reliable, then the questionnaire can be distributed to the research sample. After the data from the questionnaire has been collected, the next step is to analyze the data. In this study, data analysis will use the UEQ Data Analysis Tool (Putro, Kusrini, & Kurniawan, 2020). This analysis tool will assist in processing the data from the questionnaire results to gain a deeper understanding of user experience in IKD applications (Díaz-Oreiro, López, Quesada, & Guerrero, 2019).

RESULTS AND DISCUSSION
1. Descriptive Statistical Analysis of IKD Application UEQ Testing

This study uses descriptive statistical analysis by calculating the average score (mean) of all variable indicators or statement indicators on the questionnaire.

The following table presents the value index for the average value of each variable.

Table 2. Average Value Range

Average value range	Information
>0,8	Positive
-1,6	Neutral
<-0,8	Negative

Then, the average score (mean) on each variable is compared with the benchmark data presented in the UEQ Analysis Tools. This benchmark data set consists of evaluation data from 21,175 respondents across 468 studies. These studies cover general products, business software, web pages, web shops, and social networks. Benchmark data classified in 5 categories (per variable).

Table 3. Benchmark UEQ

Category	Information
Excellent	Within 10% best results.
Good	10% of the results in the benchmark data set are better than the results for the product being evaluated, 75% of the results are worse.
Above Average	25% of the results in the benchmark are better than the results for the product being evaluated, 50% of the results are worse.
Below Average	50% of the results in the benchmark are better than the results for the product being evaluated, 25% of the results are worse.
Bad	In the 25% range the worst results

In the UEQ Benchmark there are categories on the results of evaluating user experience in using the application under study. The following are some of the categories in the UEQ Benchmark:

a. Excellent :

The excellent category is the evaluation result on products that are included in the best 10% of results in this benchmark data set consisting of evaluation data from 21,175 respondents in 468 studies.

b. Good

One of the eligibility classification criteria involves a scenario where the performance of the product being evaluated is exceeded by 10% of the results in the benchmark dataset, while 75% of the results show lower performance.

c. Above Average

The Above Average category comprises 25% of benchmark results, indicating that these results outperform the product being evaluated. Conversely, 50% of the results are below the benchmark, indicating lower performance in comparison.

d. Below Average

The Below Average category consists of 50% of benchmark results indicating superior performance compared to the product being evaluated, while 25% of results indicate lower performance.

e. Bad

The Bad category is when the evaluation results on a product are among the worst 25% results in the benchmark data set.

2. Results of Evaluation of IKD Application User Experience

The next finding relates to the assessment of user experience in IKD applications. The average value of respondents' answers for each research variable was analyzed.

Table 4. Results of Evaluation of Attractiveness Variables of IKD Applications

Code	Indicator		Mean	Evaluation result
ATR1	Troublesome	Pleasant	1,7	Positive
ATR2	Good	Bad	1,8	Positive
ATR3	Dislike	Exhilarating	1,7	Positive
ATR4	Uncomfortable	Comfortable	1,7	Positive
ATR5	Attractive	Not attractive	2	Positive
ATR6	User friendly	Not user friendly	1,8	Positive
Attractiveness			2,14	Positive

The attractiveness variable describes the user's overall impression of the IKD application. The results of the analysis show that the attractiveness variable has a positive evaluation value. All indicators on the attractiveness variable also got positive results. It can be said that the respondent's assessment of the attractiveness variable in the IKD application as a whole is good.

Table 5. Results of Evaluation of Variable Clarity (Perspicuity) of IKD Applications

Code	Indicator		Mean	Evaluation result
PEP1	Incomprehensible	Understandable	1,8	Positive
PEP2	Easy to learn	Hard to learn	1,7	Positive
PEP3	Complicated	Simple	1,7	Positive
PEP4	Clear	Confusing	1,7	Positive
Kejelasan (Perspicuity)			1,725	Positive

The variable clarity (perspicuity) explains the user's impression of understanding the ease of using the IKD application. The results of the analysis show that the perspicuity variable obtains a positive evaluation value. All indicators on the variable clarity (perspicuity) also got positive results. It can be said that the respondent's assessment of the clarity (perspicuity) variable in the IKD application as a whole is good.

Table 6. Results of Evaluation of IKD Application Efficiency Variables

Code	Indicator		Mean	Evaluation result
EFI1	Fast	Slow	1,5	Positive
EFI2	Not efficient	Efficient	1,7	Positive
EFI3	Impractical	Practical	1,9	Positive
EFI4	Organized	Untidy	1,8	Positive
efficiency			1,725	Positive

The efficiency variable explains the user's impression that the IKD application can help users complete tasks quickly and efficiently, as well as an organized interface. The results of the analysis show that the efficiency variable obtains a positive evaluation value. All indicators on the efficient variable (efficiency) also got positive results. It can be said that the respondent's assessment of the efficiency variable in the IKD application as a whole is good.

Table 7. Evaluation Results of Dependability Variables for IKD Applications

Code	Indicator		Mean	Evaluation result
DED1	Unpredictable	Predictable	1,4	Positive
DED2	Obstruct	Support	1,6	Positive
DED3	Safe	Not safe	1,7	Positive
DED4	Meet	Did not	1,4	Positive

Code	Indicator	Mean	Evaluation result
	expectations	meet expectations	
Dependability		1,525	Positive

The dependability variable describes the user's subjective perception of security and user interaction control in the IKD application. The results of the analysis show that the dependability variable obtains a positive evaluation value. All indicators on the dependability variable also got positive results. It can be said that the respondent's assessment of the dependability variable in the IKD application as a whole is good.

Table 8. Results of Evaluation of IKD Application Stimulation Variables

Code	Indicator		Mean	Evaluation result
STM1	Beneficial	Less Helpful	1,7	Positive
STM2	Boring	Exciting	0,9	Positive
STM3	Not attractive	Attractive	1,6	Positive
STM4	Motivating	Not Motivating	1,7	Positive
Stimulation			1,475	Positive

The stimulation variable describes the user's subjective perception of the level of interest and satisfaction obtained in the IKD application. The results of the analysis show that the stimulation variable obtains a positive evaluation value. All indicators on the stimulation variable also got positive results. It can be said that the respondent's assessment of the stimulation variable in the IKD application as a whole is good.

Table 9. Evaluation Results of Variable Novelty of IKD Applications

Code	Indicator		Mean	Evaluation result
NOL1	Creative	Monotone	0,7	Neutral
NOL2	Inventive	Conventional	0,01	Neutral
NOL3	Common	Front	0,6	Neutral
NOL4	Conservative	Innovative	1,1	Positive
Kebaruan (*Novelty*)			0,602	Netral

The novelty variable explains the user's subjective perception of the IKD application design by assessing the innovative, creative, and user-attractive side. The results of the analysis show that the novelty variable has a neutral evaluation value. The indicators are NOL1 (creative or monotonous), NOL2 (inventive or conventional), and NOL3 (common or leading) get neutral evaluation results. Furthermore, for the NOL4 indicator (conservative or innovative) it gets a positive

value. It can be said that the respondent's assessment of the novelty variable in the IKD application as a whole is not good, but not bad either.
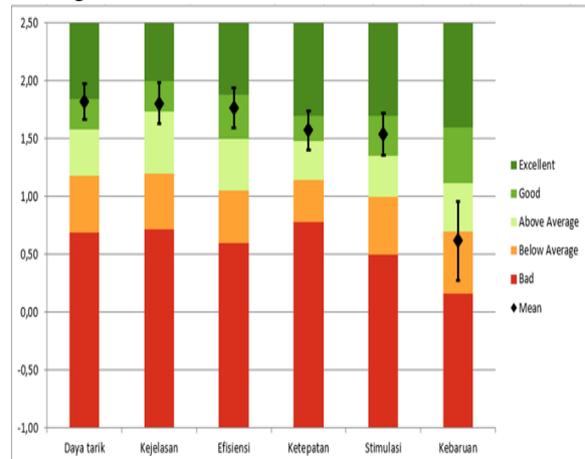
Fig. 2. IKD Application UEQ Evaluation Results

Fig. 2 displays the evaluation results of all variables that have been measured regarding user experience by utilizing the UEQ method in IKD applications obtained from 135 respondents. A number of variables reach an average value exceeding 0.8 or reach a level indicating a positive result, as indicated by the presence of a light green area, including the variables of attractiveness, clarity (perspicuity), efficiency (efficiency), accuracy (dependability), and stimulation (stimulation). While there is one variable that gets an average value between -0.8 to 0.8 or is at a neutral level of results marked with an orange area, namely the novelty variable.

The next analysis is to compare the average (mean) value of each variable with the benchmark data set. The purpose of this comparison is to see the quality of IKD applications when compared to other products.
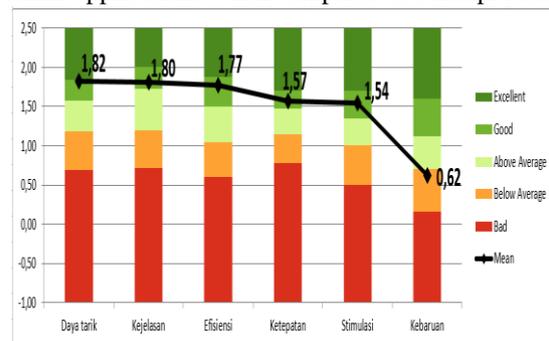
Fig. 3 IKD Application UEQ Benchmarks

Fig. 3 shows that when compared with other products, IKD applications fall into the good category for the variables of attractiveness, clarity (perspicuity), dependability, efficiency, and stimulation, while the novelty variable (novelty) is included in the category below average (below average).

The conclusions that can be drawn from the results of the descriptive analysis to evaluate the user experience of the IKD application are as follows:

a. Evaluation results with a positive (good) value are owned by the attractiveness, clarity (perspicuity), efficiency, dependability, and stimulation variables in IKD applications, while the novelty variable obtains evaluation results with a neutral value.

b. The attractiveness variable gets the highest average value, while the lowest score is obtained from the novelty variable.

c. When compared to other products in the benchmark data, the variables of attractiveness, clarity (perspicuity), efficiency (efficiency), dependability, and stimulation are included in the "Good" category. This shows that 10% of the results of the evaluation of the evaluation of attractiveness, clarity (perspicuity), efficiency (efficiency), dependability, and stimulation variables in the benchmark data set are better than the IKD application results, and The remaining 75% are worse.

d. And for novelty variables, it is included in the "Below Average" category. This shows that 50% of the results of the evaluation of the novelty variable in the benchmark data set are still better than the results of the IKD application, and the remaining 25% are worse

3. Recommendation

Based on the results of the user experience evaluation that has been carried out using the UEQ method, the recommendations that can be given for IKD applications are as follows:

a. Providing digitalized public services in the field of population and civil registration through the IKD application with a more attractive, inventive, advanced and also innovative appearance as an evaluation of the novelty variable can be better.

b. Providing digitized public services in the field of population and civil registration through the IKD application by maximizing results that are already good to be improved and maximized through attractiveness variables including applications that are fun, good, uplifting, comfortable, attractive, and user-friendly.

CONCLUSION

This study succeeded in evaluating user experience in the Digital Population Identity (IKD) application by measuring 6 variables from the User Experience Questionnaire (UEQ) method. The results of the user experience evaluation show that there are 5 variables with positive results, namely attractiveness (average = 2.14), clarity (average = 1.725), efficiency (average = 1.725), accuracy (average = 1.525), and stimulation (mean = 1.475). However, on the novelty variable (mean = 0.602) the evaluation results are neutral. Based on benchmark values using the UEQ Data Analysis Tools, 5 variables get "good" scores, namely attractiveness, clarity, efficiency, accuracy, and stimulation. However, the novelty variable still gets a "below average" value.

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