Journal of Artificial Intelligence and Engineering Applications

Website: https://ioinformatic.org/

15th June 2025. Vol. 4. No. 3; e-ISSN: 2808-4519

Usability Analysis of Kupang City's New Students Admission System

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Abstract

This study examines the usability issues of Kupang City's New Student Admission system, which still faces challenges in functionality, such as technical support features (email and phone numbers) that often do not function properly, as well as non-intuitive menu placement, making it difficult for users to find important information. Additionally, the website does not provide clear guidance or tutorials, especially for users who are less familiar with technology. These issues hinder the efficiency of the registration process, which should be quick and straightforward. This research employs the USE Questionnaire method to evaluate aspects of usefulness, ease of use, ease of learning, and user satisfaction. Data is collected through questionnaires distributed to parents and students who have used the PPDB system. The results of the study are expected to identify issues related to system navigation, feature effectiveness, and technical problems experienced by users. These findings will serve as the basis for recommendations to improve the user interface, enhance system features, and improve the overall user experience. Thus, the Kupang City PPDB system is expected to function more effectively and meet the needs of the community in the student admission process in a transparent and efficient manner

Keywords: *Evaluation System, Online New Students Admission, Use Questionnaire, User Satisfaction, Usability System*.

1. Introduction

The implementation of the online New Student Admission (PPDB) system has brought significant changes in the efficiency and transparency of the student registration process in various schools in Indonesia. This system, which is web-based, allows for faster, more accessible and structured education services, while minimizing manipulative practices and encouraging an increase in people's digital literacy [1]. In Kupang City itself, the use of the online PPDB system has shown positive results, with a decrease in the number of complaints from 211 cases in 2021 to only 32 cases in 2022 [3]. This system is also expected to provide equal access to education, minimize discrimination, and increase selection transparency.

Based on data from the Kupang City Education and Culture Office, 52 schools have implemented the online PPDB system, consisting of 32 elementary schools and 20 junior high schools [4]. This shows the commitment of the Kupang City Government in utilizing information technology to support a more inclusive and efficient education. With this system, prospective students and parents are no longer constrained by distance or time in conducting the registration process, and can monitor the selection process openly
However, in practice, Kupang's PPDB system still faces a number of obstacles, particularly related to usability. Some important features such as technical assistance via email and phone number do not function optimally, menu placement is not intuitive, and there are no adequate guides or tutorials, especially for users who are less familiar with technology. This causes the supposedly quick registration process to become more complicated and time-consuming. Therefore, an in-depth evaluation of the system is needed to assess the extent to which the system is able to provide convenience and comfort to its users.

This research aims to evaluate the usability of the Kupang City PPDB system using the USE Questionnaire method, which includes four main aspects: usefulness, ease of use, ease of learning, and satisfaction [2]. The questionnaire was distributed to students and parents as active users of the system. This data collection is expected to provide a real picture of user perceptions and experiences while accessing the system, which will be the basis for providing recommendations for improving the interface and service features. The results of this evaluation are expected to support the Kupang City Education and Culture Office in improving the PPDB system to be more effective, user-friendly, and adaptive to the needs of the community.

2. Methodology

USE Questionnaire is an evaluation instrument designed to assess the level of usability of a system, application, or technology product based on the perceptions and direct experiences of its users. This method focuses on four main aspects, namely Usefulness (the extent to which the system helps complete tasks), Ease of Use (ease of operation), Ease of Learning (ease of learning by new users), and Satisfaction (overall level of satisfaction), which together provide a complete picture of the effectiveness of user interaction with the

system. With a statement format rated on a Likert scale, this questionnaire is not only simple to use, but also very helpful in uncovering the strengths and weaknesses of a system from a user's perspective, thus becoming an important tool for developers to improve and refine interface design and system functionality. This instrument was first introduced by Arnold M. Lund in a scientific article entitled "Measuring Usability with the USE Questionnaire" published in the journal Usability Interface in 2001 [2].

The research process included six main stages: planning the usability test, identifying respondents, developing and testing the validity and reliability of the questionnaire, conducting the test, collecting and analyzing data, and reporting results. Validity was tested using Pearson Product Moment and reliability using Cronbach's Alpha with the help of SPSS application. Until All statement items in the questionnaire were declared valid and reliable.

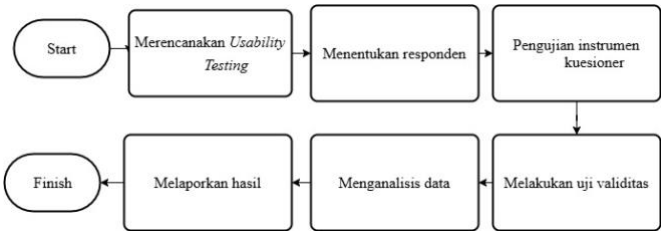

Fig. 1: Research Phases

2.1. Usability Testing Planning

This initial stage aims to design a comprehensive system usability evaluation process. Researchers set goals, choose a quantitative approach with the USE Questionnaire method, and compile research instruments that are relevant to system usability indicators.

2.2. Respondent Identification

Respondents were determined based on certain criteria, namely users of the Kupang City PPDB system consisting of students and parents/guardians who have used the portal. The selection was done purposively to ensure the involvement of respondents who have direct experience of the object of research.

2.3. Questionnaire Instrument Development and Testing

The questionnaire instrument in this study was developed based on four main indicators, namely usefulness, ease of use, ease of learning, and satisfaction. Before being used in the main data collection, the questionnaire was tested on 30 respondents to test its validity and reliability. Validity was assessed by comparing the calculated r value against the r table at the 5% significance level, while reliability was tested using Cronbach's Alpha value through SPSS software, with a minimum limit of 0.60. The results of this test are the basis for revising the statement items so that the instruments used are truly valid and reliable.[5]

2.4. Usability Testing Implementation

After the instrument is declared valid and reliable, the data collection process is carried out by distributing questionnaires to respondents. At this stage, data is obtained based on the perceptions and experiences of respondents while using the PPDB system.

2.5. Data Collection and Analysis

The collected data was analyzed using a descriptive statistical approach. Calculations were carried out to obtain the average value (mean) of each statement item and continued with the calculation of the grand mean to assess the level of usability in each aspect studied, namely usefulness, ease of use, ease of learning, and satisfaction. The assessment of each statement uses a five-point Likert scale, which consists of:

Table 1: Likert scale

Skala Ukur	Sangat Tidak Setuju (STS)	Tidak Setuju (TS)	Netral (N)	Setuju (S)	Sangat Setuju (SS)
Nilai	1	2	3	4	5

The scores obtained from all respondents were then averaged to interpret the user's perception of the system. The assessment categories are divided based on the score range, which is then presented in a value interpretation table to determine whether the usability level is in the very low, low, moderate, high, or very high category.

2.6. Reporting of Research Result

The final stage is the preparation of an evaluation report that includes the main findings, data interpretation, and recommendations for system improvement. The results of this research are expected to be a reference in developing the PPDB portal to be more effective and user-friendly.

3. Results and Discussion

3.1. Description of Respondents

The respondents of this study amounted to 140 people consisting of parents and students in Kupang city who have used the portal. from the results of the questionnaire can explain the description of respondents based on: gender, and status.

Table 2: Composition of Respondents by gender

No	Gender	Number of People	Percentage

1.	Male	109	77,86%
2.	Female	31	22,14%
	Total	140	100%

Based on the results of data collection, the composition of respondents in this study is divided into two main groups, namely men and women. In detail, the number of male respondents is 109 people, which is equivalent to 77.86% of the total sample. Meanwhile, female respondents totaled 31 people, or covered 22.14% of the total respondents.

Table 3: Composition of Respondents by status

No	**Status**	**Number of People**	**Percentage**
1.	Student	69	49,29%
2.	Parents	71	50,71%
	Total	140	100%

Based on the results of data collection, the composition of respondents in this study were students and parents. In detail, the number of respondents from among students was 69 people, which is equivalent to 49.29% of the total sample. Meanwhile, respondents from the parents category amounted to 71 people, or 50.71% of the total respondents.

3.2 Validity and Reliability Test

3.2.1. Validity test

After analyzing the data using SPSS software, the r-count value was obtained for each statement item in the questionnaire. The r-table value in this study is 0.361, in accordance with the 5% significance level. The results of testing the validity of each questionnaire item are presented in the following table.

Tabel 4: Validity Test Results

Correlation	**Statement**	**Correlation**		**Description**
		r-count	**r-table**	
Usefulness	P1	0,399	0,361	Valid
	P2	0.436	0,361	Valid
	P3	0.592	0,361	Valid
	P4	0.460	0,361	Valid
	P5	0.444	0,361	Valid
	P6	0.512	0,361	Valid
	P7	0.370	0,361	Valid
	P8	0.556	0,361	Valid
Ease of use	P9	0.758	0,361	Valid
	P10	0.668	0,361	Valid
	P11	0.669	0,361	Valid
	P12	0.516	0,361	Valid
	P13	0.784	0,361	Valid
	P14	0.743	0,361	Valid
	P15	0.676	0,361	Valid
	P16	0.696	0,361	Valid
	P17	0.558	0,361	Valid
	P18	0.581	0,361	Valid
	P19	0.363	0,361	Valid
Ease of learning	P20	0.604	0,361	Valid
	P21	0.625	0,361	Valid
	P22	0.762	0,361	Valid
	P23	0.626	0,361	Valid
	P24	0.722	0,361	Valid
Satisfaction	P25	0.753	0,361	Valid
	P26	0.720	0,361	Valid
	P27	0.653	0,361	Valid
	P28	0.574	0,361	Valid
	P29	0.551	0,361	Valid
	P30	0.540	0,361	Valid

Based on Table 4, it can be concluded that all statement items in the questionnaire are declared valid, because the r-count value of each statement is greater than the r-table value at the predetermined significance level. This comparison shows that each item in the questionnaire instrument is able to measure what should be measured, so it is feasible to use in collecting research data.

3.2.2 Reliability Test

The reliability test is carried out thoroughly on all items in the questionnaire to determine the extent to which the instrument can provide consistent results. Reliability shows the stability and reliability of measuring instruments in measuring a variable repeatedly. In this test, the Cronbach's Alpha value is used as the main reference. If the Cronbach's Alpha value is more than 0.60, then the questionnaire is considered reliable, meaning that the instrument has good internal consistency and can be trusted. Conversely, if the Cronbach's Alpha value is less than 0.60, the questionnaire is considered unreliable, which means that the items in the questionnaire are not consistent enough in measuring the variable in question.[5]

Table 5: Reliability Test Results

Variable	Cronbach alpha Value	r-Table	Description
Usefulness	0.68	0.60	Reliabel
Ease of use	0.88	0.60	Reliabel
Ease of learning	0.83	0.60	Reliabel
Satisfaction	0.84	0.60	Reliabel

Based on Table 6, it can be concluded that all variables in the research questionnaire are declared reliable, because the Cronbach's Alpha value of each variable exceeds the 0.60 mark. This value indicates that the questionnaire instrument has good internal consistency, so it can be used as a reliable measuring tool in collecting data for this study.

3.3.3 Usability Measurement

In this analysis, the calculation of the mean value for each statement on the questionnaire is carried out by referring to the method described in the previous calculation example. Each respondent's answer is converted into a numerical score according to the weights on the Likert scale, where each answer category has a certain value. The number of respondents in each category is then multiplied by the corresponding weighted score, and all multiplication results are summed to obtain a cumulative total score. The total score is divided by the total number of respondents to obtain the average value (mean) of each statement. This mean value is then interpreted based on certain categorization criteria (such as: low, sufficient, high, and very high) to determine the level of respondents' perceptions of the statements given. After obtaining the mean value of each statement, the next step is to calculate the grand mean value for each variable, which is the average of all mean statements included in a particular variable. With this approach, the analysis is carried out systematically and quantitatively to describe the general perception of respondents on the aspects assessed in the system.

Table 6: Recap of Usefulness Variable Value

No	Statement	Mean
1	Sistem PPDB Kota Kupang membantu saya untuk mendaftar lebih cepat.	4,06
2	Sistem PPDB Kota Kupang membantu saya menjadi lebih produktif dalam proses pendaftaran.	4,23
3	Sistem sangat berguna untuk pendaftaran sekolah.	4,09
4	Sistem PPDB Kota Kupang memberi saya kontrol lebih dalam memilih sekolah.	4,06
5	Sistem PPDB Kota Kupang memudahkan saya mencapai tujuan pendaftaran saya.	4,24
6	Sistem menghemat waktu pendaftaran dibanding metode offline.	4,30
7	Sistem PPDB Kota Kupang memenuhi kebutuhan saya dalam pendaftaran	4,12
8	Saya mudah mendapatkan bantuan teknis saat mendaftar.	1,96
	Grand mean	3,88

On the usefulness variable, users generally assess that the Kupang City PPDB system has a high level of usefulness, with an average value of 3.88, which is included in the high category. This shows that most respondents feel the benefits of the system in helping to simplify the process of registering new students.

Table 7: Ease of use variable value recap

No	Statement	Mean
1	Antarmuka sistem PPDB Kota Kupang mudah dipahami.	4,19
2	Sistem PPDB Kota Kupang praktis dan mudah dipahami.	4,19
3	Sistem PPDB mudah digunakan bahkan untuk pemula.	4,25
4	Saya bisa menyelesaikan pendaftaran dengan sedikit langkah di sistem PPDB Kota Kupang.	3,28
5	Sistem PPDB Kota Kupang mudah digunakan dalam berbagai kondisi.	4,26
6	Menggunakan sistem PPDB Kota Kupang tidak membutuhkan banyak usaha.	4,14
7	Saya bisa menggunakan sistem PPDB Kota Kupang tanpa membutuhkan panduan atau instruksi.	1,96
8	Saya tidak mengalami error/kendala teknis saat menggunakan sistem.	4,11
9	Sistem disukai oleh berbagai jenis pengguna (orang tua/siswa).	4,23
10	Jika terjadi error, saya bisa memperbaiki masalah sendiri.	2,43
11	Saya selalu berhasil menyelesaikan pendaftaran tanpa bantuan orang lain.	4,28
	Grand mean	3,76

After obtaining the average value (mean) of each statement on the ease of use variable, the next step is to calculate the grand mean, which is the overall average of the variable. Based on Table 7, the grand mean value for the ease of use variable is 3.76, which indicates that users find this system easy to use.

Tabel 8: Recap of Ease of Learning Variable Score

No	Statement	Mean
1	Saya cepat belajar cara menggunakan sistem.	4,23
2	Saya mudah mengingat langkah-langkah pendaftaran.	4,28
3	Saya cepat bisa menguasai cara menggunakan sistem PPDB Kota Kupang.	3,03
4	Sistem menyediakan panduan atau tutorial yang memadai.	2,91
5	Saya puas dengan layanan dan kinerja sistem PPDB Kota Kupang.	4,06
	Grand mean	3,70

After obtaining the average value (mean) of each statement on the ease of learning variable, the next step is to calculate the grand mean, which is the overall average of the variable. Based on Table 8, it is known that the grand mean value for the ease of learning variable is 3.70, which indicates that users find this system easy to learn.

Tabel 9: Recap of Satisfaction Variable Value

No	Statement	Mean
1	Saya akan merekomendasikan sistem ini ke orang lain.	4,12
2	Saya merasa senang saat menggunakan sistem ini.	4,09
3	Sistem bekerja sesuai ekspektasi saya.	4,11
4	Saya merasa sangat puas dengan sistem PPDB Kota Kupang.	2,30
5	Sistem ini sangat dibutuhkan untuk PPDB online di Kota Kupang.	4,36
6	Sistem PPDB Kota Kupang nyaman dan mudah digunakan untuk semua kalangan.	4,21
	Grand mean	3,87

After obtaining the average value (mean) of each statement on the satisfaction variable, the next step is to calculate the grand mean value, which is the overall average of all statements in the variable. Based on Table 9, it is known that the grand mean value for the satisfaction variable is 3.87. This value indicates that in general users are very satisfied with the system used. Furthermore, the recapitulation of usability values from the four variables above is measured and analyzed using the assessment table presented in the following table.

Tabel 10: Rating Score

No	Score	Categori
1.	$4.20 \leq \text{Skor} \leq 5$	Very High
2.	$3.40 \leq \text{Skor} < 4.20$	High
3.	$2.60 \leq \text{Skor} < 3.40$	Fair
4.	$1.80 \leq \text{Skor} < 2.60$	Low
5.	$1.00 \leq \text{Skor} < 1.80$	Very Low

The results of the above calculations are then compared with the standards listed in Table 10. This comparison is done by calculating the total grand mean obtained, then dividing by the number of variables analyzed, using the following formula.

$$\text{Grand Mean X} = \frac{\text{Total rata-rata hitung}}{\text{Jumlah pernyataan}} \quad \text{(i)}$$

Based on the results of these calculations, an overall grand mean value of 3.80 was obtained. This value indicates that in general the tested system is in the 'HIGH' category, which means that the system has fulfilled the usability aspects very well and is well received by users.

4. Conclusion

Based on the analysis of the Kupang City New Learner Admission (PPDB) system which includes four aspects of usability, namely usefulness, ease of use, ease of learning, and satisfaction, it can be concluded that this system as a whole has a high level of usability with a grand mean value of 3.80. In terms of usefulness, the system is considered useful because it is able to speed up the registration process, save time, and fulfill users' information needs. Ease of use is also high, with most users finding the system easy to operate. In addition, ease of learning shows that the system is relatively easy to understand, even by users who are less familiar with technology. The satisfaction aspect also gave positive results, where users were satisfied with the experience of using this system.

Nonetheless, there are still some important things that need to be improved to enhance the overall user experience. It is recommended that the Kupang City Government and the PPDB system management team improve the technical assistance service to make it more responsive and accessible, especially when there are problems in the registration process. The system interface also needs to be simplified to make it more intuitive, accompanied by clearer and more interactive user guides in the form of text, images, and video tutorials. In addition, training or socialization to prospective users can be a strategic step to minimize usage errors. Regular evaluation and development of the system is very important so that online PPDB can continue to be adjusted to the needs of the community and the development of information technology, so that the quality of public services can be optimized and satisfying.

Acknowledgments

I would like to thank my parents for always supporting me. I would also like to thank Mr. Max Abr Lenggu as my supervisor who has guided me in conducting this research.

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