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User Experience for the PayPal Application Using the User Experience Questionnaire (UEQ) Method: A Case Study in Pagar Alam

Imam Zada Ainullah[1], Muhammad Husni Syahbani[2], Dwi Rosa Indah[3]
[1,2,3] Department of Information System, Univ. Sriwijaya, Indonesia

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ABSTRACT

Digital transformation and financial inclusion have driven the increased use of digital wallets and online transactions, PayPal as one of the largest digital payment services. However, the user responses to the quality of PayPal's systems and services are still diverse. This study aims to evaluate the user experience of the PayPal application version 8 using the User Experience Questionnaire (UEQ) method. The results showed that PayPal scored very well in attractiveness with a score of 1.82, efficiency (1.67), dependability (1.66), stimulation (1.78), and novelty (1.61), and it placed PayPal above 75% of the similar apps. Even though clarity, with a score of 1.72, was rated "Above Average", it indicated that 25% of other apps were performing better. As a result, this aspect still needed attention. Overall, PayPal offered a positive user experience particularly in attractiveness and efficiency, but improvements to clarity were still needed. In addition, further evaluation is still needed because the scope of this research only covered the city of Pagaralam.

Corresponding Author:

Muhammad Husni Syahbani,
Department of Information System, Univ. Sriwijaya, Indonesia.
Jalan Palembang-Prabumulih KM 32, Indralaya, Kabupaten Ogan Ilir, Sumatera Selatan, Indonesia 30662
Email: husnisyahbani@unsri.ac.id

1. INTRODUCTION

Digital transformation, financial inclusion, fintech, and e-wallets have grown rapidly thanks to advances in information and communication technology, as well as dependence on smartphones for internet access [1]. In this context, digital wallets and online transactions have emerged as solutions to challenges related to cash usage and remote transactions. The era of the 4.0 industrial revolution has seen technological improvements that have had a significant impact on payment systems, with various applications such as being used by the public for non-cash payments [2]. E-payments make it easy for users to make transactions quickly without having to visit a specific physical location. Among the various e-payment applications, e-wallets are often the preferred choice because the registration process is relatively easy.

Indonesian PayPal users still face several user experience issues that may affect overall satisfaction. Based on user reviews on the Google Play Store and App Store, common complaints include difficulties in account verification, sudden account limitations or freezes, unclear transaction status information, and a lack of localized guidance in the Indonesian language. In addition, users often report confusion when navigating certain features, particularly related to balance withdrawal, dispute

resolution, and fee transparency. These issues indicate that although PayPal is widely used in Indonesia, there are still usability and clarity challenges that need to be systematically evaluated from the users' perspective. Therefore, a focused user experience evaluation is necessary to identify specific weaknesses and provide improvement recommendations tailored to Indonesian users.

Although numerous studies have evaluated user experience in digital wallet and e-payment applications using the User Experience Questionnaire (UEQ) method, most of these studies focus on local or national e-wallet services such as OVO, GoPay, QRIS, and LinkAja, or on websites rather than globally used payment platforms. Research that specifically evaluates the user experience of the PayPal mobile application is still limited, particularly for the latest application version and within the Indonesian context.

Furthermore, existing studies on PayPal generally discuss its functionality or adoption in international payment systems, without providing a structured measurement of user experience dimensions such as attractiveness, clarity (perspicuity), efficiency, dependability, stimulation, and novelty. In addition, no prior study has specifically examined the user experience of PayPal version 8 using the UEQ method with respondents from Pagaralam City.

Therefore, this study addresses this research gap by conducting a focused and systematic evaluation of the PayPal version 8 application using the UEQ method, with empirical data collected from PayPal users in Pagaralam City. The results are expected to provide specific insights into the strengths and weaknesses of PayPal's user experience in Indonesia and serve as a reference for improving the application's usability and clarity for local users.

2. METHOD

In order to answer the research questions or achieve the research objectives, researchers used a series of methodological steps and procedures known as research methodology to collect, examine, and draw conclusions from the data. Figure 1 below illustrates the phases of this research:

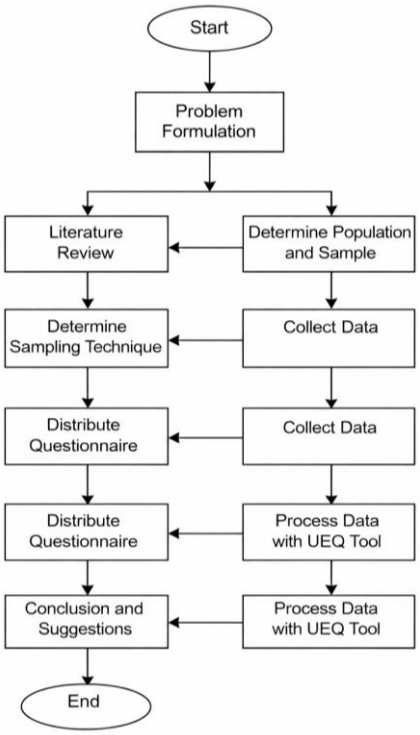

Figure 1. Research Methodology

1) Problem Formulation
   Determining specific and relevant research problems or questions need to be solved. This stage involved identifying the main issues that were the focus of the research.
2) Literature Review
   Conducting a literature review is used to understand the context and existing knowledge related to the problem that has been formulated. A literature review helps to place the research within an existing theoretical framework and identify gaps in knowledge that need to be filled.
3) Determining the Population and Sample
   The general components that are the subject of research, such as goods and people with certain characteristics, are referred to as the population. Many factors, including limited and unlimited population size, homogeneous and heterogeneous population characteristics, and further differences between the target population and the survey population, can be used to classify populations [12]. In this study, the population of focus was PayPal app users in Pagaralam, with specific characteristics relevant to the research [13]. Using the Lemeshow formula, the sample size was determined based on the following conditions:

   n = minimum sample size

$$n = \frac{Z^2.P.(1-P)}{d^2}$$

   z = Z-score at 95% confidence = 1.96
   p = Unknown proportion in the
   population 50% = 0.5 d = error rate of
   10% = 0.1
   Based on this formula, the following calculation results were obtained:

$$n = \frac{(1{,}96)^2.(0{,}5).(0.5)}{(0{,}1)^2} = 96{,}04$$

   The calculation results showed that the minimum sample size required for questionnaire respondents was 96.04, which was then rounded up to 100 respondents to ensure the accuracy of the research results.
4) Determining the Sampling Technique
   A sampling technique is a technique used to select a portion of individuals from a population as a source of data in a study [12]. In this study, the Snowball Sampling technique was used for sampling; this method was likened to a rolling snowball where samples were obtained gradually through recommendations from several initial respondents to obtain the next respondents. The selected respondents had a systematic and structured level of relevance [14].
5) Distributing the Questionnaire
   One method for usability testing that can be used to quickly measure the level of user experience

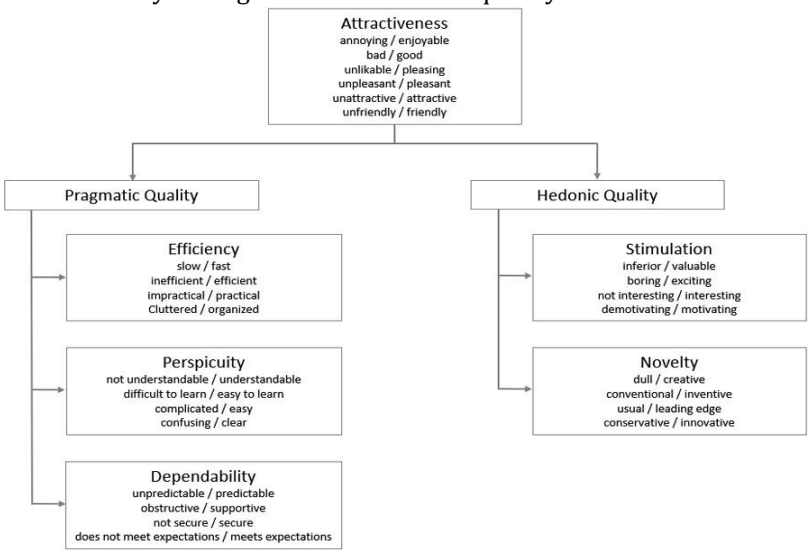

Figure 2. Structure of Aspects and Items of the UEQ [16]

with a product is the UEQ questionnaire [15]. The UEQ questionnaire consisted of 26 statements divided into 6 scales; selected participants in this study were given the questionnaire. Figure 2 below illustrates how UEQ indicators and scale structures were considered when designing the research questionnaire:

a. Attractiveness: An overall assessment of a product's appeal. For example: good or bad, attractive or unattractive.

b. Efficiency: Measures how quickly users can complete the desired task. Example: fast or slow, practical or impractical.

c. Perspicuity (Clarity): Assesses the extent to which a product is easy to understand and learn, particularly for new users.

d. Perspicuity (Clarity): Assesses the extent to which a product can be used easily. Example: easy to understand or difficult to understand.

e. Dependability: Describes the extent to which users can control their interaction with the product. Example: Supportive or obstructive.

f. Stimulation: Measures the level of motivation and interest of users when using the product. Example: Attractive or unattractive.

g. Novelty: Is the product design innovative and creative? Is the product able to attract users' attention? How creative or novel is the product?[17].

6) Data Collection
Data collection began by involving participants in testing version 8 of the PayPal application to explore their experience with the available features. After the trial, respondents filled out a UEQ questionnaire containing 26 statements covering six dimensions of user experience.

7) Processing Data with the UEQ Tool
The UEQ tool was then used to process the information collected from respondents. The results of this data processing were then examined to collect data on the user experience of the PayPal version 8 application.

8) Conclusions and Recommendations
Drawing conclusions from the results of data analysis and offering recommendations based on research findings

3. RESULT AND DISCUSSION

At this stage, the results and discussion were carried out in detail, starting from the initial stage to the conclusion, with reference to the established research methods.

1.1 Demographic Analysis

The questionnaire distribution process in this study was carried out among the people of Pagaralam City who use the PayPal application. From the results of the questionnaire distribution that had been filled out by PayPal application users in Pagaralam, a total of 100 respondents were collected. Based on the data collected, the following are the characteristics of the respondents as presented in Table 1:

Table 1. Characteristics of respondents

Category	Subcategory	Frequency	Percentage (%)
Age	18–25	29	29
	26–30	31	31
	31–40	28	28

	41–50	10	10
	> 50	2	2
Gender	Male	36	36
	Female	64	64
Occupation	Student	20	20
	Civil Servant	26	26
	Private Employee	35	35
	Freelancer	7	7
	Not Working	1	1
	Other	11	11
Usage Duration	> 6 months	23	23
	6 months – 1 year	26	26
	1 – 2 years	32	32
	2 – 5 years	12	12
	> 5 years	7	7

1.2 Quantitative Data Analysis

In this section, the data collected through questionnaires distributed based on user experience assessments was analyzed and measured.

1.2.1 Transformation

The following table showed the initial stage of the data transformation process, where respondents' assessments of the application, which originally used a scale of 1-7, were converted to a scale of -3 to +3 to facilitate analysis. The highest positive value is represented by +3, and the most negative value is -3. After the initial transformation stage was completed, the process continued to the final transformation stage, which is presented in Table 2 below:

Table 2. Initial transformation results

Items																									
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**
0	0	0	-1	-1	2	2	-1	-1	-1	1	0	0	1	1	2	2	2	-2	0	-1	0	0	-1	0	1
0	0	0	0	-1	1	0	0	-1	0	1	-1	0	0	2	1	-1	0	-1	1	-2	-1	0	-1	0	0
2	2	2	2	2	2	2	1	2	2	0	2	3	2	0	2	3	2	1	2	2	2	3	2	2	2
3	3	3	3	3	3	3	0	1	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
3	3	3	3	3	3	3	0	3	-3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
2	2	2	2	1	2	1	2	2	2	2	2	2	2	2	2	1	1	0	2	1	2	1	2	2	2
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	3	2	1	2	2	3	1	1	3	1	1	2	1	3	1	2	1	3	2	1	1	2	3	1	2

Table 3. Final transformation results

Scale means per person					
Attractiveness	**Clarity**	**Efficiency**	**Accuracy**	**Stimulation**	**Novelty**
0.33	-0.5	-0.25	0	1.25	0.25
-0.17	-0.5	-0.25	-0.25	0	0.5
2	2.25	2.25	1.25	2	1.5
3	3	2.5	2.25	3	2.75
3	3	3	2.25	3	1.5
2	1.75	1.75	1.25	1.25	2
…	…	…	…	…	…
1.5	1.75	1.5	1.75	2	2.5

Table 3 above showed the data processing for each respondent, where the average values for all dimensions on the User Experience Questionnaire (UEQ), such as attractiveness to novelty, were calculated. These averages were used to evaluate users' overall perceptions of the application, so that data from individuals could be integrated to provide an overview of the user experience.

1.2.2 Consistency Data

The User Experience Questionnaire (UEQ) has an Inconsistency tool that serves to refer to responses that are not serious, suspicious, or invalid, namely Inconsistencies. The following were inconsistencies from respondents for this study, as presented in Table 4 below:

Table 4. Data inconsistency

Scales with inconsistent answers						
Attractiveness	**Clarity**	**Efficiency**	**Accuracy**	**Stimulation**	**Novelty**	**Critical?**
			1			1
						0
						0
						0
					1	1
						0
						0
						0
		1				1
						0
						0
					1	1
						0
			1			1
						0
					1	1
..	..	..	..	..	..	..
						0

The table above showed inconsistencies in the data generated from the respondents' answers. To identify this problem, individual assessments were carried out. If an item had a critical value of 3 or

more, this indicated that the respondent may have made a mistake when filling out the questionnaire. Therefore,

the data should be deleted so that the analysis could produce accurate and valid conclusions. This step aimed to verify the reliability of the data used in the evaluation process. Based on the table shown, no critical values exceeding the specified limit were found.

1.2.3 Cronbach's Alpha Coefficient Data

To measure the internal consistency of items, the Cronbach Alpha coefficient was used on all UEQ scales. This process was carried out to ensure that the data obtained from the questionnaire was reliable. In general, if the Cronbach's Alpha value exceeds 0.6, the data is considered to have sufficient consistency. However, stricter standards recommend a value > 0.7 for good reliability. Meanwhile, a value below 0.6 indicates that the data is unreliable. The following are the Cronbach Alpha results obtained:

Table 5. Cronbach Alpha reliability results

Variable	Cronbach's Alpha Value	Description
Attractiveness	0.93	Reliable
Perspicuity (Clarity)	0.89	Reliable
Efficiency	0.88	Reliable
Dependability	0.85	Reliable
Stimulation	0.86	Reliable
Novelty	0.82	Reliable

All Cronbach Alpha calculation values were above 0.7, indicating that each aspect had excellent internal consistency. These values indicated that the items in each UEQ scale were strongly correlated and consistently measure the same aspect. Thus, all variables in this UEQ questionnaire were considered highly reliable and trustworthy for use in further analysis.

1.3 UEQ Measurement Results

UEQ Scales (Mean and Variance)		
	Mean	Variance
Attractiveness	1,823	1,17
Perspicuity	1,718	1,27
Efficiency	1,665	1,27
Dependability	1,660	1,23
Stimulation	1,778	1,09
Novelty	1,605	1,40
Attractiveness	1,823	1,17
Stimulation	1,778	1,40

Figure 3. UEQ Scale (Mean and Variance Values)

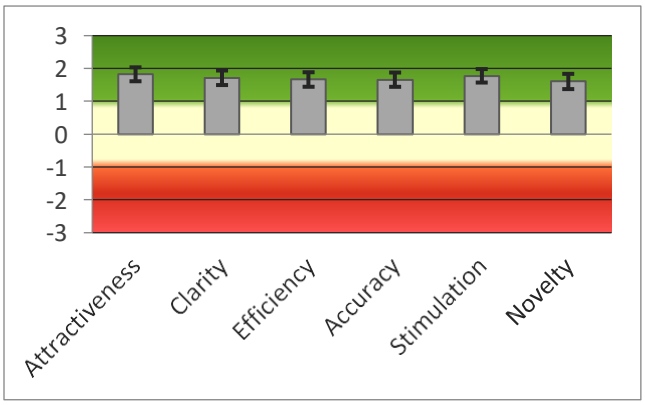

Figure 4. Graphical visualization of UEQ scales (Mean and Variance)

Table 6. Average UEQ Calculation Result

Item	Mean	Variance	SD	N	Negative	Positive	Scale
1	↑ 1.9	1.4	1.2	100	Inconvenient	Convenient	Attractiveness
2	↑ 1.8	1.2	1.1	100	Incomprehensible	Comprehensible	Perspicuity
3	↑ 1.8	1.6	1.3	100	Creative	Monotonous	Novelty
4	↑ 1.8	1.9	1.4	100	Easy to learn	Difficult to learn	Perspicuity
5	↑ 1.8	2	1.4	100	Useful	Less useful	Stimulation
6	↑ 1.8	1.6	1.3	100	Boring	Exciting	Stimulation
7	↑ 1.8	1.2	1.1	100	Uninteresting	Interesting	Stimulation
8	↑ 1.6	1.6	1.3	100	Unpredictable	Predictable	Dependability
9	↑ 1.6	1.9	1.4	100	Fast	Slow	Efficiency
10	↑ 1.5	2.5	1.6	100	Inventive	Conventional	Novelty
11	↑ 1.8	1.5	1.2	100	Obstructive	Supportive	Dependability
12	↑ 1.8	1.6	1.3	100	Good	Bad	Attractiveness
13	↑ 1.8	1.8	1.3	100	Complicated	Simple	Perspicuity
14	↑ 1.9	1.4	1.2	100	Disliked	Liked	Attractiveness
15	↑ 1.7	2.3	1.5	100	Common	Advanced	Novelty
16	↑ 1.8	1.5	1.2	100	Uncomfortable	Comfortable	Attractiveness
17	↑ 1.6	2	1.4	100	Safe	Unsafe	Dependability
18	↑ 1.8	1.4	1.2	100	Motivating	Unmotivating	Stimulation
19	↑ 1.6	2	1.4	100	Meet expectations	Not meet expectations	Dependability
20	↑ 1.7	1.7	1.3	100	Inefficient	Efficient	Efficiency
21	↑ 1.6	1.9	1.4	100	Clear	Confusing	Perspicuity
22	↑ 1.5	1.7	1.3	100	Unpractical	Practical	Efficiency
23	↑ 1.9	1.6	1.3	100	Organized	Unorganized	Efficiency
24	↑ 1.8	1.8	1.3	100	Unattractive	Attractive	Attractiveness
25	↑ 1.7	1.7	1.3	100	User friendly	Not user friendly	Attractiveness
26	↑ 1.6	2.3	1.5	100	Conservative	Innovative	Novelty

The mean in the UEQ was used to evaluate each scale separately, not as an overall score. The mean value helped identify positive (> 0.8), neutral (-0.8 to 0.8), or negative (< -0.8) evaluations of UX aspects, while variance measures data distribution and detects problems in item interpretation by respondents. The mean value was obtained from the average questionnaire responses; it was then grouped based on each scale as shown in Figures 4 and 5 above.

Based on the results of the questionnaire data distribution, the average value of the PayPal application user experience on 26 question indicators in the User Experience Questionnaire (UEQ) showed that the assessment of the application was neutral. Of the six scales calculated, evaluations with positive values were marked by green arrows pointing upwards in Figure 3. These results were grouped into three categories: Attractiveness, Pragmatic Quality, and Hedonic Quality. All three aspects were in the normal category, with a score of 1.82 for Attractiveness, 1.68 for Pragmatic Quality, and 1.69 for Hedonic Quality. More detailed information is presented in Table 8 and Figure 6 below.

Table 7. UEQ Scale

Pragmatic and Hedonic Quality	
Attractiveness	1.82
Pragmatic Quality	1.68
Hedonic Quality	1.69

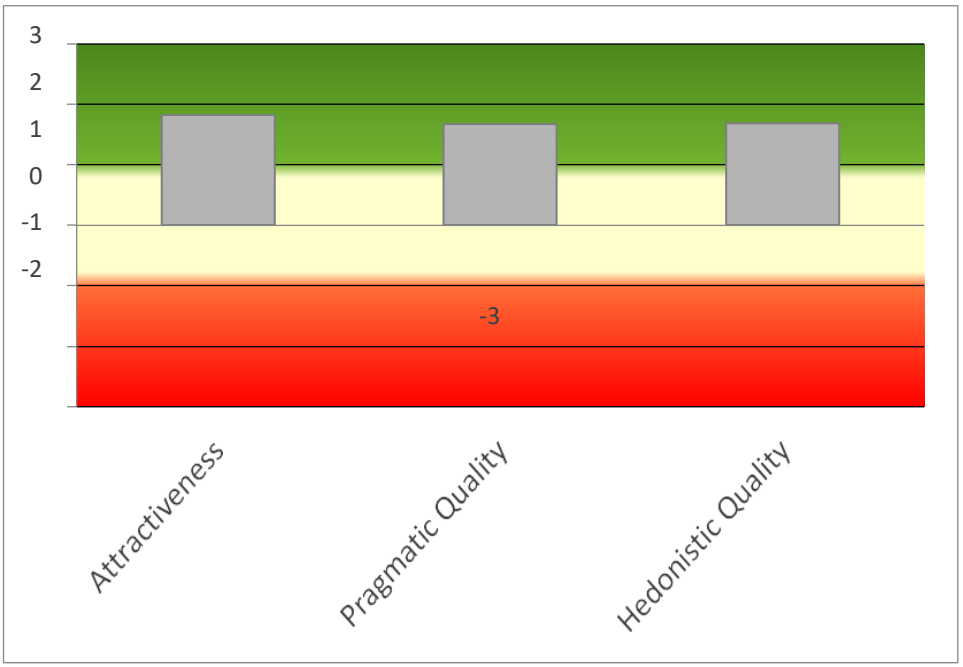

Figure 5. Results of the average UEQ calculation for each group

The next step was to compare the average values obtained with the benchmark data. This comparison process aimed to assess product quality based on benchmark data, so that researchers can conclude the relative quality of the application being studied by comparing the evaluation results with other products.

Table 8. UEQ benchmark results

Scale	Mean	Comparison to Benchmark	Interpretation
Attractiveness	1.82	Good	10% of results better, 75% of results worse
Clarity	1.72	Above Average	25% of results better, 50% of results worse
Efficiency	1.67	Good	10% of results better, 75% of results worse
Accuracy	1.66	Excellent	10% of results better, 75% of results worse
Stimulation	1.78	Excellent	In the range of the 10% best results
Novelty	1.61		In the range of the 10% best results

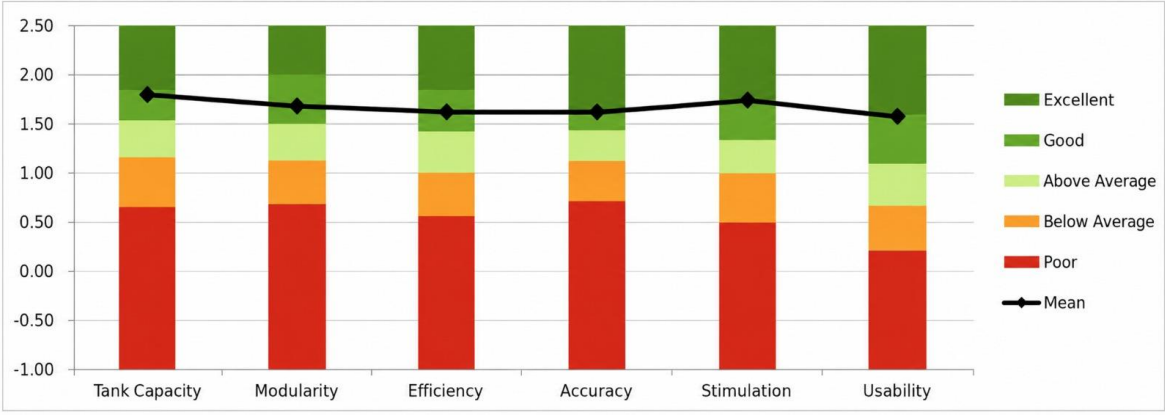

Figure 6. UEQ benchmark results graph

Based on the interpretation of the values obtained, the results displayed in the benchmark graph, presented in Table 7 and Figure 7 above, indicated the average of the six scales in the UEQ. These results showed that the PayPal application received excellent ratings in terms of appeal, efficiency, accuracy, stimulation, and novelty. The results of the UEQ analysis indicate that PayPal application version 8 generally delivers a positive user experience across most evaluated dimensions. High scores in attractiveness, efficiency, dependability, stimulation, and novelty suggest that users perceive the application as appealing, reliable, efficient, and engaging for digital payment activities. These findings are consistent with previous studies that reported favorable user experience outcomes for well-established digital payment platforms.

However, despite being categorized as *Above Average* with a mean score of 1.72, the clarity (perspicuity) dimension demonstrates the lowest relative performance among all UEQ scales. Benchmark analysis further reveals that approximately 25% of comparable applications achieve better performance in this dimension. This indicates that, although the application is generally understandable and learnable, clarity remains a comparatively weaker aspect that warrants further attention.

The relatively lower clarity score may be attributed to the functional complexity of the PayPal application, which is designed to support international transactions, multi-currency payments, and multi-layer security verification processes. For new or less experienced users, such functional richness may increase cognitive load, making certain features, workflows, or interface elements less immediately intuitive. Moreover, differences in user familiarity with international digital payment systems—particularly among users in regional areas such as Pagaralam City—may further contribute to difficulties in understanding navigation structures, terminology, or transaction procedures.

From a practical perspective, these findings provide several implications for PayPal developers. Improving clarity can be achieved by simplifying interface layouts, using clearer and more consistent labels, and reducing unnecessary visual or functional complexity. Additionally, the integration of contextual guidance features, such as tooltips, step-by-step onboarding tutorials, or localized help content, could assist first-time users in understanding key functionalities more quickly. Enhancing the clarity aspect is expected not only to reduce learning effort for novice users but also to strengthen overall user satisfaction, even though other user experience dimensions already exhibit strong performance. Therefore, targeted improvements in clarity are essential to ensure a more inclusive, intuitive, and user-friendly application for a broader range of users.

4. CONCLUSION

Based on the user experience evaluation using the User Experience Questionnaire (UEQ), PayPal application version 8 demonstrates a generally positive user experience, with the dimensions of attractiveness, efficiency, dependability, stimulation, and novelty achieving good to excellent scores.

However, the clarity (perspicuity) dimension showed relatively lower performance compared to other aspects, indicating the need for improvement in ease of understanding and learnability.

From a scientific perspective, this study extends the application of the UEQ method to a global digital payment platform (PayPal version 8) within an Indonesian regional context, which remains underexplored in prior UX studies that predominantly focus on local e-wallets. In addition, the findings highlight the importance of version-based UX evaluation, as application updates may influence user perceptions differently across UX dimensions.

From a practical perspective, the results provide clear implications for PayPal developers. Although the overall user experience is positive, the relatively lower perspicuity score indicates the need for clarity-focused design improvements. Specifically, interface terminology in critical processes such as account verification, withdrawals, and dispute resolution should be simplified using clearer and more user-friendly Indonesian language. Furthermore, enhancing onboarding support through brief interactive tutorials or contextual tooltips, providing clearer visual feedback, and improving consistency in menus and icons can reduce cognitive load, improve learnability, and increase user satisfaction and continued usage.

High-priority improvements involve core transactional features, including the account verification process, balance withdrawal flow, and transaction status information. As these features are essential for completing financial tasks, unclear instructions or insufficient feedback can lead to user errors, frustration, and reduced trust. Therefore, simplifying process flows, improving instructional clarity, and providing clear status indicators should be addressed first.

Medium-priority improvements include features that affect usability without directly blocking task completion, such as dispute resolution navigation, fee transparency displays, and confirmation messages. Enhancing clarity and structural organization in these areas can reduce cognitive load and improve user confidence.

Low-priority improvements relate to visual consistency and aesthetic aspects, including icon standardization, menu labeling consistency, and minor layout refinements. Although their immediate impact is limited, improving these elements can support long-term learnability and overall user experience.

By prioritizing improvements based on their impact, PayPal developers can allocate development resources more effectively while maintaining the application's overall performance and reliability.

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