

# User experience testing on Smart Human Capital Dashboard (SHUCADA) from PT Studio Kami Mandiri using User Experience Questionnaire (UEQ)

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**Abstract:** PT Studio Kami Mandiri is a company specialized in software development. PT Studio Kami Mandiri has developed several products or applications that have also been used by large companies. One of the products developed is the Smart Human Capital Dashboard (SHUCADA) which is used to monitor the performance of an employee in a company. User experience testing is needed to find out the possible obstacles that users will face when using the application. Therefore, this research conducted user experience testing on SHUCADA to find out employee perceptions of the application. User Experience Testing of SHUCADA using the User Experience Questionnaire (UEQ) Data Analysis Tool found that aspects of attractiveness with mean value 1.21, dependability with mean value 1.208, and stimulation with mean value 1.125 get above average scores, and aspects of efficiency (mean 1.583) get good scores. The perspicuity aspect (mean 0.604) received a bad score and the novelty aspect (mean 0.604) received a below average score.

**Keywords:** Data analysis, user experience questionnaire, user experience testing

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## Introduction

Employee performance is an important factor in the success and growth of a company. Employee performance refers to how well an employee achieves their work objectives and the quality of their work within their role. Employee performance includes not only final results, but also other elements such as cooperation, productivity, attendance, overall quality of results, and quality of work. The progress of a country can be seen from the development and quality of its human resources. The better the development of human resources in a country, the better the development and quality of human resources in that country. The development of the quality of human resources in a country can be seen through the Human Development Index (HDI). Based on data from the Human Development Index (HDI) Indonesia occupies the 6th position in Southeast Asia in the last five years [1].

Based on these problems, in an effort to improve the development of the quality of human resources in Indonesia, one of the companies in Bali engaged in IT created an innovative application that can help monitor the performance of human resources. The application is called Smart Human Capital Dashboard (SHUCADA) developed by PT Studio Kami Mandiri. SHUCADA is a human resource development application or application that can monitor the performance of an employee in a company. This Shucada application is equipped with attendance, work order, key performance indicator (KPI), dashboard, and report features.

Information technology is developing at an extremely fast rate each year. The shift in people's lifestyles that use technology as a tool to make everyday tasks more efficient is one of the advancements in information technology. The development of modern technologies is also

influenced by the internet. Businesses from a variety of industries have introduced mobile applications through the internet to help people in the age of digitization [2].

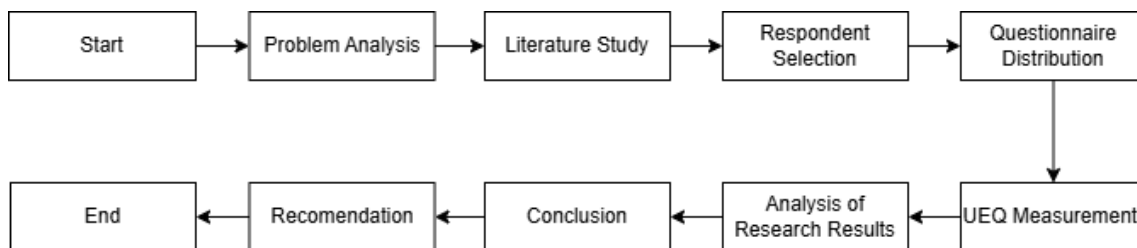
Research on User Experience Testing at SHUCADA has never been done, despite the fact that literature reviews have been done. Consequently, the business has been unable to assess each employee's performance in a thorough and organized way. This typically occurs when consumers are unable to comprehend or use an application that has multiple menus, which typically leaves users feeling a little perplexed.

One technique to determine whether users are content with the program, whether it is easy for them to use, and how well it can assist them in reaching their objectives is through user experience testing [3]. To determine the potential challenges that users may encounter when utilizing the program, user experience testing is required. In order to address this gap, this study tests SHUCADA's user experience to ascertain how employees feel about the program [4]. Questionnaires and Experience Questionnaire (UEQ) tools were used to test SHUCADA's user experience. Through this approach, this research is expected to provide theoretical contributions in the development of website quality evaluation methods, as well as practical contributions in providing guidance for website managers in designing service improvement strategies based on data and user perceptions.

UEQ is believed to provide further advantages due to its ability to generate comprehensive user experience measurement results [5]. The purpose of this study is to use UEQ to analyze and evaluate the user experience of the SHUCADA application. This study also attempts to provide suggestions and advice for improving the look of the SHUCADA application based on the results of the UEQ evaluation.

## Methodology

The research was carried out in a number of phases, including problem analysis, literature review, respondent selection, questionnaire distribution, UEQ measurement, analysis of research results, conclusion, and recommendations [6]. Figure 1 displays the research methodology.



**Figure 1.** Research methodology

The first step in this research was to identify the problem, which was that new employees at PT Studio Kami Mandiri had difficulty using the SHUCADA application. Therefore, user experience testing was needed to identify the problem, followed by a literature study to find suitable references for the research. After that, respondents were selected to participate in the user experience testing. There were 12 employees from PT Studio Kami Mandiri who participated. Table 1 shows the details of each research participant. The evaluation process using UEQ begins with respondents being asked to use all features available on SHUCADA. The aim is for users to provide good feedback and accurate UEQ results. Users can fill out the UEQ based on their impressions when using the website, including its functionality, colors, font types, layout, and other aspects. Before filling out the questionnaire, users are first instructed to use SHUCADA, then they are instructed to fill out the questionnaire using the form that has been distributed to them. The UEQ will be filled out in accordance with the UEQ guidelines.

**Table 1.** Respondent’s details

Department	Position	Status	Total Employees
Logic	Programmer Staff	Contract	6
Editorial	Content and Media Staff	Contract	2
Office	Marketing Staff	Contract	2
	Manager	Regular	1
	Administration Staff	Regular	1

Following the collection of all questionnaire responses, the data must be processed in order to provide context for the findings. Data from questionnaires must pass through a number of steps, including descriptive analysis, validity and reliability testing, and computer data entry [11]. Then, the user experience measurement of the SHUCADA application is using the User Experience Questionnaire (UEQ). Because the UEQ approach is quick and useful for interacting directly with the application user experience, researchers use it as the foundation for their studies [7]. UEQ tool analysis can be used to process UEQ data [12]. The UEQ measurement findings can serve as a guide to enhance the user interface's quality [8]. There are six scales out of a total of 26 statement items based on the measurement scale included in the UEQ. The six UEQ scales can be categorized into three groups: hedonic quality, pragmatic quality, and attractiveness [9].

**Table 2.** Item in UEQ

No	Left	Right	Scale
1	Annoying	Enjoyable	Attractiveness
2	Not understandable	Understandable	Perspiciuity
3	Dull	Creative	Novelty
4	Difficult to learn	Easy to learn	Perspiciuity
5	Inferior	Valuable	Stimulation
6	Boring	Exciting	Stimulation
7	Not Interesting	Interesting	Stimulation
8	Unpredictable	Predictable	Dependability
9	Slow	Fast	Efficiency
10	Conventional	Inventive	Novelty
11	Obstructive	Supportive	Dependability
12	Bad	Good	Attractiveness
13	Complicated	easy	Perspiciuity
14	Unlikeable	Pleasing	Attractiveness
15	Usual	Leading edge	Novelty
16	Unpleasant	Pleasant	Attractiveness
17	Not secure	secure	Dependability
18	Demotivating	Motivating	Stimulation
19	Does not meet expectations	Meets expectations	Dependability
20	Inefficient	Efficient	Efficiency
21	Confusing	Clear	Perspiciuity
22	Impractical	Practical	Efficiency
23	Cluttered	Organized	Efficiency
24	Unattractive	attractive	Attractiveness
25	Unfriendly	Friendly	Attractiveness
26	Conservative	Innovative	Novelty

ANOVA was selected because it allows the comparison of mean values across multiple UEQ dimensions to determine whether lower-scoring aspects specifically Perspiciuity and Novelty differ significantly from higher-scoring UX elements. This helps identify whether these weaknesses are statistically meaningful and therefore require targeted design improvements. Without ANOVA, differences between dimensions would rely solely on descriptive interpretation without statistical

confirmation. Before performing ANOVA, several statistical assumptions were evaluated to ensure the analysis was valid. First, the assumption of independence was satisfied because each respondent completed the UEQ individually. Second, the normality assumption was checked through inspection of the transformed UEQ data, which showed an approximately normal distribution. Third, homogeneity of variance was assumed based on similar variance patterns across UEQ dimensions. Prior UEQ literature supports treating transformed UEQ scores (-3 to +3) as interval data suitable for parametric analysis.

The pragmatic quality component is concerned with usability, efficacy, and perceived benefits. Dependability, effectiveness, and perspicuity are all included in the pragmatic quality component. The hedonic quality component is associated with novelty and stimulation [10]. Table 2 displays the 26 statement items of the UEQ.

Finding the average of each aspect value is how data analysis is done. There are positive and negative values for every item. A scale of 1 to 7, which will subsequently be translated into values from the range of -3 to +3, makes up the negative and positive components of UEQ. It can be said that the results are of good quality if the answer value is between +1 and +2 [15]. According to the UEQ evaluation criteria, a value is deemed negative if it is less than -0.8, neutral if it is between -0.8 and 0.8, and positive if it is greater than 0.8 [11].

**Table 3.** Benchmark interval

	<b>Attractiveness</b>	<b>Perspicuity</b>	<b>Efficacy</b>	<b>Dependability</b>	<b>Stimulation</b>	<b>Novelty</b>
Excellent	≥ 1.75	≥ 1.9	≥ 1.78	≥ 1.65	≥ 1.55	≥ 1.44
Good	≥ 1.52	≥ 1.56	≥ 1.47	≥ 1.48	≥ 1.31	≥ 1.05
	< 1.75	< 1.9	< 1.78	< 1.65	< 1.55	< 1.4
Above Average	≥ 1.17	≥ 1.08	≥ 0.98	≥ 1.14	≥ 0.99	≥ 0.71
Average	< 1.52	< 1.56	< 1.47	< 1.48	< 1.31	< 1.05
Below Average	≥ 0.7	≥ 0.64	≥ 0.54	≥ 0.78	≥ 0.5	≥ 0.3
	< 1.17	< 1.08	< 0.98	< 1.14	< 0.99	< 0.71
Bad	< 0.7	< 0.64	< 0.54	< 0.78	< 0.5	< 0.3

A benchmark test must also be finished in order to compare the value findings on each element in the UEQ Data Analysis Tool. Benchmark test scores are classified into five categories: Bad, Average, Below, Above Average, Good, and Excellent [13]. The processed data was then analysed to obtain user experience information from the SHUCADA application. The results of the analysis are then used to draw conclusions and generate appropriate recommendations for improvements to the SHUCADA application.

## Results and Discussions

### Results

User Experience (UX) testing on the Smart Human Capital Dashboard (SHUCADA) was carried out by distributing questionnaires via Google Form to respondents. Collected 12 respondents from all employees of PT Studio Kami Mandiri who have used the application and filled out the UEQ questionnaire honestly. The data obtained from the questionnaire were entered into the UEQ data analysis table, then transformed by calculating the values obtained from the UEQ questionnaire minus 4 to obtain positive or negative values for each UEQ item. A value of +3 is the highest positive value and -3 is the lowest negative value. Figure 2 displays the data processing outcomes as well as the average attribute of every respondent.

Items																									
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	1	1	1	2	0	1	1	1	2	0	1	1	1	0	2	1	2	0	1	1	1	1	2		
-2	3	3	0	2	2	0	-2	2	2	-3	2	2	2	2	2	2	2	2	2	2	2	2	2		
0	0	1	-1	-2	-1	-1	1	1	1	-3	0	0	-2	0	-1	-2	1	-2	0	0	0	1	-1		
1	-2	2	0	1	0	2	1	3	2	-1	1	0	1	2	1	1	2	-1	1	2	2	0	1		
1	2	2	1	1	1	2	1	2	2	1	1	-1	1	2	1	1	2	2	1	2	1	0	1		
2	2	1	1	1	0	1	1	1	2	0	1	-1	1	2	1	1	1	1	1	3	1	1	1		
0	1	2	1	1	1	1	1	2	1	-1	0	-1	0	1	0	2	1	1	1	3	2	0	1		
2	-1	2	0	2	1	2	2	1	2	-1	0	-1	2	3	1	1	2	2	3	3	3	2	1		
1	-1	1	1	2	0	2	2	2	1	-1	1	-1	1	2	0	1	1	2	0	2	1	-1	1		
1	-1	1	1	1	0	1	2	1	1	0	1	-1	2	2	1	0	0	1	1	3	2	1	1		
3	2	2	1	1	1	3	3	2	3	2	2	-3	3	2	2	2	2	3	3	3	3	1	1		
1	1	2	2	3	2	3	2	2	3	2	2	-2	2	2	1	1	3	2	1	1	3	1	1		

Figure 2. Transformed data

Figure 2 presents the UEQ transformed scores ranging from -3 to +3 for all 26 items. Positive values indicate favorable user impressions, while negative values indicate unfavorable impressions. The figure visually highlights which items received consistently positive ratings and which items showed variability among respondents. Each aspect's average is generated in the Results table. Reliability testing of the absolute question items is required prior to statistical analysis. The reliability of the questionnaire data was examined using the Cronbach alpha coefficient. The Cronbach alpha coefficient shows that all UX factor scales are consistent. Table 4 shows the Cronbach alpha values for each UEQ component.

Table 4. Cronbach's Alpha values for all UEQ aspects

	Attractiveness	Perspicuity	Efficiency	Dependability	Stimulation	Novelty
Value	0.94	0.90	0.87	0.92	0.90	0.89

Table 4 shows the Cronbach's alpha values (>0.7) for each admissible UEQ component. These consist of novelty (0.89), dependability (0.92), efficiency (0.87), perspicuity (0.90), Attractiveness (0.94), and stimulation (0.90). According to research conducted by Henim and Sari [3], if the test results show a Cronbach's alpha value of >0.7 for all aspects, this proves that the analysed data is accurate. Table 4 reports the internal reliability of each UEQ scale. All Cronbach's Alpha values exceed 0.87, indicating excellent internal consistency across the six UX aspects. Hedonistic quality, pragmatic quality, and attractiveness are the three main facets of UEQ [3]. The scale values for the three aspects are shown in Table 5.

Table 5. Detailed average scores of each UEQ aspect

Aspects	Value	UEQ Aspects	UEQ Scale Value
Attractiveness	1.21	Attractiveness	1.208
		Perspicuity	0.604
Pragmatic Quality	1.13	Efficiency	1.583
		Dependability	1.208
		Stimulation	1.125
Hedonic Quality	0.86	Novelty	0.604

Annoying/enjoyable, good/bad, unlikeable/pleasing, unpleasant/pleasant, attractive/unattractive, friendly/unfriendly are some of the factors that make up the attractiveness scale. With an average score of 1.21 for this attractiveness. The pragmatic quality factor has an average rating of 1.13. According to the pragmatic quality aspect, which includes the clarity aspect with an average score of 0.604. Additionally, this application has an average dependability score of 1.208. The average value for the efficiency component is 1.583. Hedonic quality is a component of user feelings about a product that influences innovation or new product design, as well as stimulation or motivating pleasure. At 0.86. Hedonic quality is a component of user feelings about a product that influences innovation or new product design, as well as stimulation or motivating pleasure. At 0.86, with an average value of 1.125 for the stimulation and 0.604 for the novelty component of the hedonic quality component hedonic quality has the lowest average.

Table 5 lists the mean scores for all UEQ dimensions categorized into Attractiveness, Pragmatic Quality (Perspicuity, Efficiency, Dependability), and Hedonic Quality (Stimulation, Novelty). The values indicate that Efficiency received the highest positive evaluation, while Perspicuity and Novelty scored the lowest.

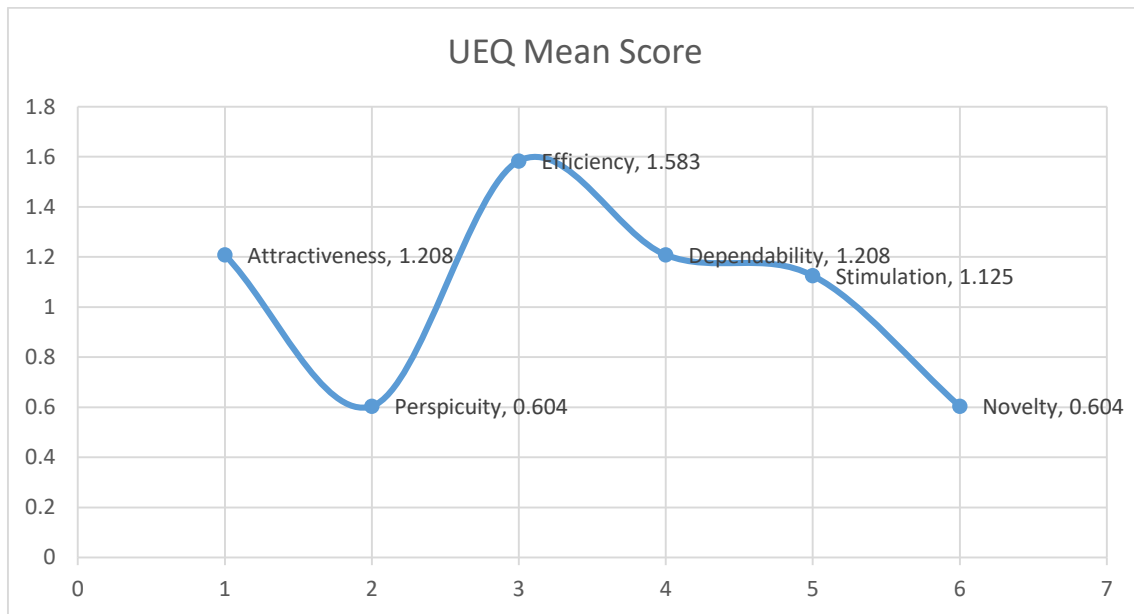


Figure 3. UEQ chart

The UEQ curve in Figure 3 reveals a product with strong functional performance but critical user adoption barriers. The dominant peak at Efficiency (1.583 - Good) confirms the application is highly optimized for fast task completion, fulfilling its pragmatic role effectively. However, the system's utility is immediately undermined by its dual low scores on Perspicuity (0.604 - Bad) and Novelty (0.604 - Below Average). Low Perspicuity is a major red flag, indicating that the interface is difficult to learn and navigate, suggesting a complex information architecture that hampers new user onboarding. Coupled with low Novelty, the application is perceived as uninspiring and outdated. While the mid-range scores for Attractiveness and Stimulation are acceptable, they are insufficient to compensate for the fundamental flaws in clarity and innovativeness, making the application fast but fundamentally unfriendly in its current state.

Table 6. ANOVA between UEQ aspects

Source of Variation	SS	df	MS	F	P-value	F crit
Perspicuity vs Efficiency	5.752604	1	5.752604	7.242623	0.013339	4.30095
Novelty vs Attractiveness	2.190104	1	2.190104	6.243645	0.020424	4.30095
Novelty vs Dependability	2.190104	1	2.190104	7.232995	0.013393	4.30095
Novelty vs Efficiency	5.752604	1	5.752604	18.82184	0.000264	4.30095
Novelty vs Stimulation	1.627604	1	1.627604	5.513232	0.028274	4.30095

Table 6 shows the results of the ANOVA analysis between two aspects of UEQ, namely Perspicuity and Novelty. These two aspects were chosen as comparators because they have lower UEQ Scale Values than other aspects, making it important to further analyze their relationship with other aspects of user experience. The analysis was conducted on five sources of variation, namely Perspicuity vs. Efficiency, Novelty vs. Attractiveness, Novelty vs. Dependability, Novelty vs. Efficiency, and Novelty vs. Stimulation. These five pairs were selected because the p-values obtained were less than 0.05, indicating a significant difference between the compared aspect

pairs. This table presents ANOVA comparisons between low-performing aspects (Perspicuity, Novelty) and other UX dimensions. All pairs listed show p-values < 0.05, indicating statistically significant differences.

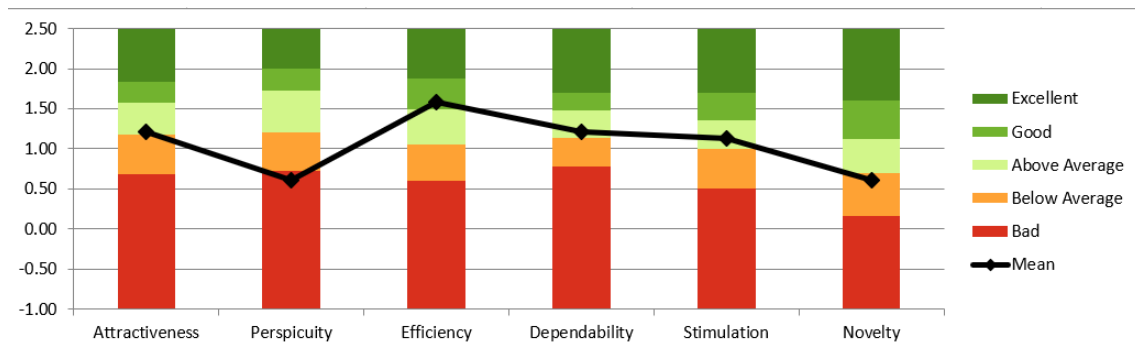


Figure 4. Benchmark result

In Figure 4, we can clearly see each section ranging from bad to excellent and average. Based on the benchmark results, attractiveness, dependability, and stimulation got above average results. Efficiency gets good results. This benchmark visualization compares SHUCADA's UEQ results to international benchmark categories (Bad, Below Average, Above Average, Good, Excellent). Efficiency reaches the Good category, while Attractiveness, Dependability, and Stimulation fall within Above Average. Perspicuity and Novelty fall into Below Average categories.

## Discussions

This application is more attractive than usual, it is because this application is an application that is quite fun and encouraging for employees to use, then employees have a good impression of the SHUCADA application because employees feel comfortable when using the application, this application is also attractive and quite friendly to employees when used and this is in accordance with research conducted by Henim and Sari [3], if the attractiveness value has a positive impression, the system can be said to be attractive and comfortable for users. The results align with User Experience theory, which divides UX into pragmatic quality (task-related aspects such as efficiency and perspicuity) and hedonic quality (emotional aspects such as stimulation and novelty). SHUCADA displays strong pragmatic performance in efficiency but shows weakness in perspicuity. Hedonic quality also appears limited due to low novelty, indicating that the system may not feel modern or innovative to users. This theoretical interpretation supports the findings of the statistical analysis.

According to the pragmatic quality aspect, which includes the perspicuity aspect, this program is straightforward to use and clear. However, it offers features and menus that are difficult to grasp. In addition, this app has a good dependability score, indicating that it is safe to use and effective at supporting business operations. It can also meet a company's expectations as an employee management application and in accordance with research conducted by Pangestu et al. [14], if the results of the dependability aspect get a good score, the system can be said to be able to provide support in terms of usage control and a sense of security when users operate the system. The score of the efficiency aspect gets a good score, because only internal company employees use this application, it responds quickly when used to fill out work orders or face attendance forms. It is regarded as efficient, practical, and well-organized because it is simple to use, saves time when monitoring work, and groups its features according to their specific functions. This is in accordance with research conducted by Henim and Sari [3], if the efficiency aspect shows a positive impression then this shows that users can complete tasks quickly when using the system.

With good scores for the stimulation component of the hedonic quality component, this application is beneficial and engaging for businesses to track employee activity in all areas, as well as increasing employee motivation to be more productive in the company because of the help of this application and in accordance with research conducted by Henim and Sari [3], if the score from the stimulation aspect is good, the system is useful for users and motivates users to

use it. However, the novelty aspect scores below average, indicating that the application lacks innovative and modern features, according to research conducted by Fatmawati et al. [16], if the novelty aspect score is below average, users will feel that the application is uninteresting and does not provide a satisfying experience in the long term, because the novelty aspect is related to how the application provides a unique, innovative, and interesting experience for its users. Therefore, the appropriate recommendation for improving the SHUCADA application in order to increase its novelty aspect score is to improve navigation by reorganizing the navigation structure to make it more accessible and user-friendly, and to adopt the latest design trends such as the use of smooth animations and transitions [16].

The ANOVA results confirm that the lower-scoring aspects such as Perspicuity and Novelty are significantly different from the other UX dimensions, indicating that their weaknesses are statistically meaningful rather than the result of random variation. The significant difference between Perspicuity and Efficiency ( $p=0.013$ ) shows that a simple interface does not necessarily lead to faster task completion. Likewise, the significant difference between Novelty and Attractiveness ( $p=0.020$ ) indicates that a system may be visually appealing yet still feel outdated or lacking innovation. The strongest difference found between Novelty and Efficiency ( $p=0.00026$ ) further reinforces that a highly efficient system does not automatically incorporate new or innovative design elements. These findings highlight the priority areas for UX improvement, particularly the need to simplify menus and interface structures to enhance Perspicuity, and to introduce more modern, creative, and up-to-date design elements to improve the Novelty aspect. The ANOVA results show that the significant difference between the aspects of Perspicuity and Efficiency indicates that even though a simple and easy-to-understand interface does not necessarily enable users to complete tasks quickly. The analysis results between the aspects of Novelty and Attractiveness show that the novelty of a system is not automatically considered attractive by users. In the Novelty and Dependability pair, a significant difference emerged because the novelty presented by the system is often accompanied by instability or inconsistency in its functions. In the Novelty and Efficiency pair, where the p-value is very small, it means that innovative systems are not necessarily practical or quick to use, because users need time to understand new functions. Significant differences between Novelty and Stimulation indicate that even though a system is considered new, it does not always provide a pleasant or motivating experience for users.

Therefore, this research makes recommendations to improve the user experience aspect of SHUCADA application based on the result of UEQ. Since they continue to receive below-average and poor benchmark scores, as well as user feedback indicating that this application requires new innovations and feature simplification to make it easier for new hires to learn. The results of this study will be given to PT Studio Kami Mandiri as reference material for them to develop the SHUCADA system.

## Conclusion

The results of data processing using descriptive statistics on each attribute that measures user experience with UEQ show that the SHUCADA application gets a neutral evaluation value on the perspicuity aspect with an average of 0.604 and the novelty aspect with an average of 0.604, while getting a positive evaluation value on the attractiveness aspect with an average of 1.21, the efficiency aspect with an average of 1.583, the dependability aspect with an average of 1.208, and the stimulation aspect with an average of 1.125. Features of attractiveness, dependability, and stimulation are known to receive above-average scores, while features of efficiency receive good scores, according to benchmark values derived by each UEQ component utilizing the UEQ Data Analysis Tool, it indicates that the application is very efficient in application response, practical and organized features in the application so that it can streamline employee time. However, further evaluation is still needed because it still has some shortcomings in the novelty aspect which gets below average results and the perspicuity aspect which gets bad results. This indicates that this application needs new innovations or creativity in maintaining the lifetime of this application, and it is necessary to pay attention to this application again so that it is not difficult to learn for new employees later because of its complicated features and menus. Therefore, this research makes recommendations to improve the user experience aspect of SHUCADA application based on the result of UEQ. Since they continue to receive below-average

and poor benchmark scores, as well as user feedback indicating that this application requires new innovations and feature simplification to make it easier for new hires to learn, novelty and perspicuity are the suggested areas for improving user experience.

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