

# Analyzing User Experience in KAI Access Application using the UEQ Method

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**Abstract** – This research aims to provide a comprehensive analysis of the User Experience (UX) components within the KAI Access platform framework, with a particular focus on the need to evaluate the platform's UX. This evaluation is very important because of the emergence of user complaints and usability problems in the KAI Access application rating on the Appstore and Playstore which can affect user satisfaction and overall user engagement. This study leverages insights from previous research in UX analysis, particularly in transportation applications, it identifies key areas for improvement. It implements best practices to ensure a smooth and intuitive user experience. Leveraging frameworks and theories from the field of UX design, the methodological approach revolves around conducting UEQ surveys to comprehensively understand user behavior and interactions. Through systematic evaluation, this research assesses the UX dynamics of the KAI Access system, by carefully examining the strengths, weaknesses, and areas that require improvement to increase user satisfaction and system usability. This research succeeded in showing that the KAI Access platform has good performance in terms of efficiency and reliability. However, from the evaluation there are deficiencies in various areas such as user interface design and interactive responsiveness which are shown in the discussion results indicating the potential for increasing user satisfaction and system usability through pragmatic improvements. Additionally, this paves the way for future research to explore the impact of these improvements on user satisfaction and consider the integration of new technologies for a richer user experience.

**Keywords** – KAI Access, User Experience, User Experience Questionnaire.

## I. INTRODUCTION

KAI Access is the official PT Kereta Api Indonesia (Persero) application, which provides online train ticket booking services. This application was first released on September 4, 2014. With features such as ticket reservations, online payments, travel information, seat selection, digital e-tickets, travel notifications, and route search, this application aims to make it easier for users to plan and track their train journey. Apart from that, KAI Access also provides the latest information regarding schedules, stations, and facilities so that it becomes a comprehensive tool for handling aspects of train travel in Indonesia. To achieve these goals and maximize its use, a positive user experience is crucial for the KAI Access application.

The User Experience (UX) component is very important in shaping user engagement and satisfaction on digital platforms. We carry out assessment evaluations not only on several features but on all features in the KAI Access application because this is related to the application's rating on Google Playstore and Appstore. Thus, this article provides an in-depth examination of the UX elements within the KAI Access platform framework that aimed to improve user-centered interactions and optimize overall satisfaction.

Improving UX aspects in an information platform is crucial as it has a direct impact on user engagement, task efficiency, and adoption rates, thereby influencing user retention. Suboptimal UX can lead to user frustration and reduced efficiency, highlighting the importance of

addressing these components (Kushendriawan et al., 2021). This statement emphasizes the importance of User Experience (UX), which reflects user sentiment when interacting directly with applications and will be a crucial factor in developing and improving applications in the future.

This research will evaluate various aspects of user experience, using methods such as the User Experience Questionnaire (UEQ) and assessing usability aspects. This approach allows us to measure the effectiveness of these features and set benchmarks for continuous improvement. By doing this, we can meet users' needs and guarantee their satisfaction with the system (Pahlevi et al., 2019). Through this research methodology, we seek to gain insight into user behaviour and their engagement with the system, ultimately allowing us to recommend impactful improvements.

In this research, the User Experience Questionnaire (UEQ) method is used as a testing method using six assessment scales, namely attractiveness, perspicuity, efficiency, dependability, stimulation, and novelty, which have hedonic and pragmatic quality assessment aspects. Another method used in this research is Usability Testing, which tests applications objectively by seeing how users use the application directly. Usability Testing involves assessing three main aspects: effectiveness, efficiency, and satisfaction, which can support the elements in the User Experience Questionnaire (UEQ) in this research.

By finding out what works well, what needs to be improved, and what areas could be better, our goal is to make users happier and the system easier to use, especially in mobile applications. Additionally, it is relevant to regular



evaluation of applications, and user experience is essential based on user feedback obtained from platforms such as Google Play Store and Apple Store (Sabukanze & Arakaza, 2021). This ensures user retention and supports KAI Access in its mission to provide seamless access to transportation services for the people of Indonesia, especially focusing on users who utilize the ticket purchasing feature. Continuous improvement efforts are essential to maintain a high level of user satisfaction and loyalty, specifically focusing on the UX dynamics in the KAI Access system, we aim to provide a seamless and intuitive user experience. Leveraging insights from previous research in UX analysis, particularly in transportation applications, we sought to identify areas for improvement and implement best practices.

## II. RESEARCH METHODOLOGY

Evaluation of the user experience of the KAI Access application information system was carried out using the User Experience Questionnaire (UEQ) method. Factors measured using the UEQ include attractiveness, efficiency, clarity, reliability, and stimulation. The methodology used in this research is explained as follows:

### A. Population and Sample

In the context of this research, respondents are people aged 19-30 years who have downloaded the KAI Access application and have user experience with the application. This survey was distributed through various online channels that are popular among the target age group, such as social media platforms and email newsletters, to ensure wide reach especially among users on the island of Java. We were able to collect responses from fifty-five participants over about three weeks. This sample size reflects focused exploratory analysis to identify initial trends and user feedback on the UX of the KAI Access platform. The data collection period was strategically limited to two weeks to maintain speed in gathering timely feedback and simplify the analysis phase of the study.

### B. Data Collection uses UEQ

Sangat Tidak Menarik	○ ○ ○ ○ ○	Sangat Menarik
Sangat Sulit	○ ○ ○ ○ ○	Sangat Mudah
Sangat Tidak Intuitif	○ ○ ○ ○ ○	Sangat Intuitif
Sangat Tidak Responsif dan Sangat Lambat	○ ○ ○ ○ ○	Sangat Responsif dan Sangat Cepat
Tidak Pernah	○ ○ ○ ○ ○	Sangat Sering
Sangat Tidak Memuaskan	○ ○ ○ ○ ○	Sangat Memuaskan
Sangat Sulit	○ ○ ○ ○ ○	Sangat Mudah
Sangat Tidak Efektif	○ ○ ○ ○ ○	Sangat Efektif
Sangat Tidak Puas	○ ○ ○ ○ ○	Sangat Puas
Sangat Sulit	○ ○ ○ ○ ○	Sangat Mudah
Sangat Lambat	○ ○ ○ ○ ○	Sangat Cepat
Sangat Buruk	○ ○ ○ ○ ○	Sangat Baik
Sangat Tidak Konsisten	○ ○ ○ ○ ○	Sangat Konsisten
Sangat Tidak Puas	○ ○ ○ ○ ○	Sangat Puas

Fig. 1 UEQ in Bahasa

Table 1. User Experience Questionnaire

On a scale of 1-5, how do you rate the visual appearance of the KAI Access application? (Colors, icons, typography)
On a scale of 1-5, how easy was it for you to find the information you were looking for in the KAI Access application?

On a scale of 1-5, how intuitive do you find the navigation in the KAI Access app?
On a scale of 1-5, what do you think about the responsiveness and speed of the KAI Access application?
On a scale of 1-5, how often do you experience problems or bugs when using the KAI Access application?
On a scale of 1-5, how satisfying was your experience when ordering tickets via the KAI Access application?
On a scale of 1-5, how easy is it for you to use the search feature in the KAI Access app?
On a scale of 1-5, how effective do you think the notification feature in the KAI Access application is?
On a scale of 1-5, how satisfied are you with the payment options available in the app?
On a scale of 1-5, how easy is it for you to access key features (such as train schedules, bookings and payments) on the KAI Access app?
On a scale of 1-5, how fast do KAI Access application pages load?
On a scale of 1-5, how well does the KAI Access app work on your mobile device in terms of app stability?
On a scale of 1-5, how consistent is the user experience of the KAI Access app when used on different devices (for example, phone vs tablet)?
On a scale of 1-5, how easy is it to navigate the menus and sub-menus in the KAI Access application?
On a scale of 1-5, how satisfied are you overall when using the KAI Access application?

User Experience Questionnaire (UEQ) is a quantitative measure of a product's user experience (UX) and can be used in the quality assurance process for concrete projects. In this study, user experience was measured using the UEQ questionnaire, which consists of 14 statements, as in Figure 1 and Table 1. There are six user experience (UX) factors that were measured using UEQ, namely attractiveness, perspicuity, efficiency, dependability, stimulation, and novelty.

Figure 1 displays a rating scale that is usually used in surveys or questionnaires to assess various aspects of a subject or object. On the left and right are a series of rated attributes, such as "Interesting," "Difficult," "Intuitive," "Responsive and Slow," "Ever," "Satisfactory," "Effective," "Satisfying," "Slow," "Poor," and "Consistent." For each of these attributes, there is a scale with options that range from negative to positive, for example, from "Very Unattractive" to "Very Attractive". Respondents are expected to provide their assessments by marking one of the circles on the scale that corresponds to their perception or experience. Such a scale allows raters to measure responses in gradations, providing a nuanced picture of how strongly respondents feel about each aspect being assessed. This approach is aligned with the testing scale for meth supporters, incorporating the six factors of attractiveness, perspicuity, efficiency, dependability, stimulation, and novelty.

### C. Data Processing and Analyst

At this stage, descriptive analysis is carried out to provide a comprehensive picture of how KAI Access application users experience their experience. The collected data will be analyzed using statistical software relevant to aspects of the user experience. Descriptive statistical analysis will be used to summarize the findings from the questionnaire,



including the calculation of the mean, median, and standard deviation for each aspect of the user experience.

### III. RESULTS AND DISCUSSION

The questionnaire was distributed online through various media platforms on the internet and involved 55 respondents from various regions in Indonesia. Researchers compiled a questionnaire and distributed it to respondents based on the frequency of use of the KAI Access application. The frequency diagram for using the KAI Access application is shown in Figure 2.

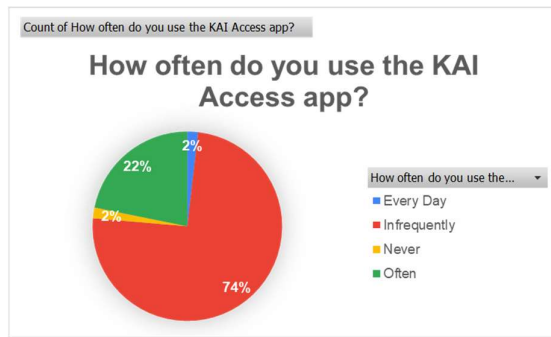


Fig. 2 Frequency Diagram

This research was carried out first by converting the data into the UEQ data analysis tool. Next, the average value is calculated using the mean UEQ grading scale rules.

Table 2. Result from UEQ Scale

No	Mean	Variance	Std. dev	Scale	Benchmark Comparison
1	3.09	1.96	1.40	Attractiveness	Below
2	2.86	1.82	1.35	Perspicuity	Below
3	3.13	1.87	1.37	Efficiency	Above
4	2.96	2.08	1.44	Dependability	Below
5	2.99	2.07	1.44	Novelty	Above
6	2.86	1.78	1.33	Efficiency	Below
7	3.26	2.01	1.42	Perspicuity	Above
8	2.63	1.67	1.29	Efficiency	Below
9	2.98	2.55	1.60	Stimulation	Above
10	3.08	1.89	1.38	Perspicuity	Above
11	2.90	1.77	1.33	Efficiency	Below
12	2.78	1.89	1.37	Novelty	Below
13	3.11	2.02	1.42	Attractiveness	Above
14	3.15	2.19	1.48	Stimulation	Above

Table 2 shows that Stimulation has the widest variation in opinion among respondents, which is indicated by the highest variance and standard deviation, namely 2.55 and 1.60 for item 9. and getting an 'Above' value in the benchmark comparison. This shows that some respondents may feel very stimulated by this product or service.

The ease of understanding (Perspicuity) in item 7 received the highest average score of 3.26, which shows that this is one of the strongest attributes of the product or service. This is supported by the comparison benchmark, which shows the 'Above' value. This value is obtained based on a table of average values for each aspect of the UEQ scale, which can be seen in Table 2.

Table 2. UEQ Scales Mean

UEQ Scales (Mean)			
Attractiveness	3.10	Attractiveness	3.10
Pragmatic Quality	2.97	Perspicuity	3.07
		Efficiency	2.88
		Dependability	2.96
Hedonic Quality	2.98	Stimulation	3.07
		Novelty	2.89

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From the results of this research, the user experience of the KAI Access application has several prominent aspects. The aspects most strongly assessed by respondents were attractiveness and novelty, which shows that users feel stimulated and interested in the features or services offered by this application.

However, several pragmatic aspects are rated below user expectations, such as efficiency and reliability. This shows that although the features offered are attractive, users want improvements in terms of application performance and reliability.

The ratings on Playstore or AppStore show how many users have complained about the KAI Access application service. Some of the complaints are related to application bugs, application responses that are not fast enough, and even ticket orders that have been paid for disappear. This needs special attention from the development team so that KAI's ratings and services improve on the mobile platform.

In the analysis of the UEQ evaluation results for the KAI Access application between Table 1 and Table 2, prominent findings include high scores on the Stimulation and Perspicuity aspects, indicating the app succeeded in attracting user interest and facilitating understanding. The large variation in user opinions about Stimulation signifies appealing app features, although there is a need to improve the consistency of experience. On the other hand, aspects such as efficiency and dependability were rated below expectations, indicating that despite having attractive features, performance and reliability issues need to be addressed.

This aligns with user feedback from the Play Store and App Store, revealing complaints related to app bugs, insufficient response speed, and issues with paid ticket orders disappearing. These complaints show that while the KAI Access app has a high Attractiveness score and succeeded in attracting user interest, there is a need to focus on improving pragmatic aspects such as performance and stability. The success in stimulating interest must be



balanced with effective handling of technical issues to improve ratings and increase user satisfaction with this app. This becomes an important task for the development team to ensure that the app is not only visually and functionally appealing but also reliable and efficient in its operations. Thus, improvements in these pragmatic aspects will strengthen the app's value, increase user satisfaction, and boost long-term retention.

The results of this research imply that KAI App developers need to focus on improving pragmatic aspects such as efficiency and reliability while still maintaining hedonic aspects that make users interested and feel stimulated. They can do this by updating the user interface, improving application stability, and speeding up response times, thereby increasing overall user satisfaction.

#### IV. CONCLUSION

The research findings regarding the use of the KAI Access application have successfully demonstrated the alignment between the expectations outlined in the Introduction and the findings in the Results and Discussion sections. This research shows that the KAI Access application has strong hedonic potential, but improvements are needed in the pragmatic aspects to meet user expectations more comprehensively. In the context of development, this research opens up prospects for further studies that can explore the impact of enhancing pragmatic aspects on user satisfaction, as well as the potential integration of new technologies to improve the overall user experience. This marks an important step in understanding the dynamics of information systems in the context of user experience and offers guidance for strategic implementation in application development.

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