

The development of user interface (ui) for m-tix application in improving user experience (ux) using a/b testing method

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ABSTRAK

Penelitian ini bertujuan untuk mengembangkan Antarmuka Pengguna (*User Interface/UI*) aplikasi M-Tix guna meningkatkan Pengalaman Pengguna (*User Experience/UX*) menggunakan metode *A/B Testing*. Studi ini menanggapi keluhan pengguna terkait desain yang usang, navigasi yang membingungkan, serta masalah teknis seperti penutupan aplikasi secara tiba-tiba. Dengan menggunakan model pengembangan ADDIE dan melibatkan 385 pengguna aktif di Medan, penelitian ini melakukan dua evaluasi utama, yaitu *A/B Testing* dan *User Experience Questionnaire (UEQ)*. Hasil *A/B Testing* menunjukkan preferensi yang konsisten dan signifikan terhadap prototipe desain baru (*Desain B*) dibandingkan aplikasi asli pada semua elemen: Ikon (64,9%), Tata Letak (64,4%), Visual (64,7%), Navigasi (63,6%), dan Pewarnaan (64,3%). Selain itu, analisis *UEQ* menghasilkan penilaian "Excellent" pada keenam skala, yaitu Efisiensi (2,07), Kejelasan (2,06), Daya Tarik (2,03), Ketepatan (1,83), Stimulasi (1,81), dan Kebaruan (1,62), yang menempatkan desain ini dalam jajaran 10% produk digital terbaik di dunia. Implikasi dari temuan ini menunjukkan bahwa implementasi desain ulang tersebut sangat disarankan karena secara langsung mengatasi ketidakpuasan pengguna, meningkatkan tingkat kepercayaan pengguna, serta memberikan pengalaman transaksi yang lebih cepat dan logis.

Kata Kunci: antarmuka pengguna; pengalaman pengguna; m-tix; a/b testing; addie

ABSTRACT

This study aims to develop the User Interface (UI) of the M-Tix application to improve the User Experience (UX) using the A/B Testing method. This study responds to user complaints regarding outdated design, confusing navigation, and technical issues such as sudden application closures. Using the ADDIE development model and involving 385 active users in Medan, this study conducted two main evaluations, namely A/B Testing and User Experience Questionnaire (UEQ). The results of A/B Testing showed a consistent and significant preference for the new design prototype (Design B) compared to the original application on all elements: Icons (64.9%), Layout (64.4%), Visuals (64.7%), Navigation (63.6%), and Coloring (64.3%). Furthermore, the UEQ analysis yielded an "Excellent" rating on all six scales, namely Efficiency (2.07), Clarity (2.06), Appeal (2.03), Accuracy (1.83), Stimulation (1.81), and Novelty (1.62), placing this design within the top 10% of digital products worldwide. The implications of these findings suggest that implementing the redesign is highly recommended as it directly addresses user dissatisfaction, increases user trust, and provides a faster and more logical transaction experience.

Keyword: user interface; user experience; m-tix; a/b testing; addie

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1. INTRODUCTION

Nearly all companies have embraced technology, such as mobile applications, to enhance service quality and streamline business processes. In the cinema industry, mobile ticketing services enable users to book tickets anytime and anywhere (Andhika et al., 2023). Indonesia has experienced significant growth in the

number of cinema screens, reaching approximately 2,088 by 2022, with Cinema XXI (PT Nusantara Sejahtera Raya Tbk) dominating 65% of the market (Barus, 2022). In 2023, Cinema XXI reported revenue of Rp 5.2 trillion, largely driven by ticket sales, despite a decline in digital platform revenue (Muhammad, 2024).

To provide greater convenience, Cinema XXI launched the M-Tix application to reduce long queues at ticket counters. However, despite achieving more than 10 million downloads, the application has received relatively low ratings of 3.5 on the Google Play Store and 2.5 on the App Store due to its unappealing interface, complicated *user flow*, and outdated homepage design (Nusantara Sejahtera Raya, 2024). Users have also reported limited payment options, high administrative fees for top-ups, frequent application crashes, and delays in *One-Time Password (OTP)* delivery.

An appropriate *User Interface (UI)* design is essential because it contributes to a satisfying *User Experience (UX)* (Putri & Indrayanti, 2023). Furthermore, *UX* plays a crucial role in determining application success, meeting user expectations, and fostering customer loyalty (Karyono et al., 2019).

Since users tend to abandon applications that are difficult to use, optimizing *UX* is essential for maintaining competitiveness (Ye & Liu, 2017). This study employs the *A/B Testing* method to compare two design alternatives and identify the most effective interface design (Carisfian et al., 2019), similar to previous research that improved user performance by 72% (Darmawan & Rohman, 2022). The selected design is then evaluated using the *User Experience Questionnaire (UEQ)*, which provides a more comprehensive assessment of *UX* dimensions than other evaluation instruments, such as *Questionnaire for User Interaction Satisfaction (QUIS)*, *System Usability Scale (SUS)*, and *Software Usability Measurement Inventory (SUMI)* (Schrepp et al., 2017; Abdillah, 2019).

Based on this background, this study aims to redesign the M-Tix *User Interface (UI)* to improve *User Experience (UX)* through the implementation of the *A/B Testing* method.

2. RESEARCH METHOD

A. Research Design

This study adopts a *Research and Development (R&D)* approach using the ADDIE model (*Analysis, Design, Development, Implementation, and Evaluation*). This systematic framework ensures that the redesign of the M-Tix *User Interface (UI)* is grounded in user needs and iterative development.

B. A/B Testing and Evaluation

To evaluate the interface, *A/B Testing* was conducted by comparing the existing M-Tix application (*Design A*) with the proposed prototype (*Design B*). The final evaluation utilized the *User Experience Questionnaire (UEQ)*, which measures six dimensions: Attractiveness, Perspicuity, Efficiency, Dependability, Stimulation, and Novelty (Schrepp et al., 2017).

C. Population and Sample

The research was conducted in Medan and targeted active M-Tix users. Given the infinite population size, the sample was determined using Cochran's formula with a 95% confidence level and a 5% margin of error, resulting in 385 respondents selected through purposive sampling.

3. RESULTS AND DISCUSSION

A. Respondent Demographics

This study involved 385 respondents in Medan, predominantly within the 21–28 age range. Based on the demographic data, the majority of users are highly educated, with 66.8% holding a Bachelor's degree (*SI*). Economically, the user base is primarily from the middle-to-upper-income segment, with 40.0% earning between IDR 2,000,000 and IDR 5,000,000 and 17.1% earning more than IDR 5,000,000 per month. In terms of occupation, the respondents were predominantly private-sector employees (38.4%) and students (28.8%). Regarding user loyalty, 79.7% of respondents have used the M-Tix application for more than three years, although the frequency of use remains relatively occasional, with 66.5% using the application only every few months.

B. Validity and Reliability Analysis

Before the main evaluation, a pilot study was conducted involving 30 respondents to test the research instrument. The validity test employed the *Pearson Product-Moment* correlation with a significance level of 0.05 (r table = 0.361). The results indicated that all 26 questionnaire items were valid, with calculated r values ranging from 0.928 to 0.994.

Furthermore, the reliability test confirmed that all variables exceeded the 0.60 *Cronbach's Alpha* threshold. The obtained reliability coefficients were Attractiveness (0.985), Perspicuity (0.984), Efficiency (0.982), Dependability (0.974), Stimulation (0.968), and Novelty (0.979). These values indicate that the questionnaire demonstrates a high level of internal consistency and is statistically reliable for data collection.

C. A/B Testing Results

The *A/B Testing* phase revealed a strong preference for the redesigned prototype (*Design B*) across all evaluated elements: Icons (64.9%), Layout (64.4%), Visuals (64.7%), Navigation (63.6%), and Coloring (64.3%).

The *User Experience (UX)* assessment was conducted using six scales encompassing 26 questionnaire items. These scales included Attractiveness, Perspicuity, Efficiency, Dependability, Stimulation, and Novelty. A total of 385 active M-Tix users participated in evaluating the proposed prototype.

D. User Experience Questionnaire (UEQ) Results

The evaluation of the redesigned M-Tix application using the *User Experience Questionnaire (UEQ)* produced excellent results across all six dimensions. The mean scores for each dimension are presented as follows:

1. Attractiveness (2.03): This dimension achieved a highly positive score, indicating that the overall visual appearance and first impressions of the redesigned application are highly appealing to users.
2. Perspicuity (2.06): The high score in this dimension indicates that the redesigned interface is easy to understand and that its functions are simple to learn.
3. Efficiency (2.07): As the highest-scoring dimension, this result demonstrates that users can complete tasks, such as ticket booking, quickly and with minimal effort.
4. Dependability (1.83): This score indicates that the system is reliable, meets user expectations, and provides users with a sense of control and security during transactions.
5. Stimulation (1.81): This result reflects that the redesigned application is engaging and motivating to use, thereby reducing user boredom during interactions.
6. Novelty (1.62): Although this dimension received the lowest score among the six, the result remains highly positive, indicating that users perceive the design as creative and modern compared to the original version.

E. Benchmark Interpretation

When these mean scores are compared with the *UEQ Benchmark Data Set*, all six dimensions fall within the "Excellent" category. This classification indicates that the prototype performs within the top 10% of digital products worldwide—including software, websites, and mobile applications—that have been evaluated using the *UEQ* framework.

The consistent "Excellent" ratings across both pragmatic quality dimensions (Efficiency, Perspicuity, and Dependability) and hedonic quality dimensions (Attractiveness, Stimulation, and Novelty) confirm that the redesigned interface successfully delivers a comprehensive and superior user experience.

4. CONCLUSION

Based on the research findings, it can be concluded that the redesign of the M-Tix application successfully addresses critical user complaints regarding its outdated interface and complex navigation. The *A/B Testing* results demonstrated a strong preference for the redesigned prototype (*Design B*) across all visual and functional elements. Furthermore, the evaluation using the *User Experience Questionnaire (UEQ)* yielded "Excellent" ratings across all six dimensions, placing the prototype within the top 10% of digital products worldwide.

Specifically, the redesign excelled in pragmatic quality dimensions, with Efficiency (2.07) and Perspicuity (2.06) achieving the highest scores, demonstrating that the new interface is highly logical, easy to understand, and efficient to use. These findings, supported by strong scores in Attractiveness and Dependability, confirm that the redesigned interface effectively meets the expectations of the digitally literate target audience and significantly enhances overall user satisfaction, trust, and usability.

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