

ABSTRAK

Masalah pengelolaan sampah di Kota Lhokseumawe yang belum optimal mendorong perlunya inovasi berbasis teknologi untuk meningkatkan efisiensi sistem pengelolaan sampah dan partisipasi masyarakat. Penelitian ini bertujuan untuk merancang dan menguji prototipe aplikasi bank sampah digital berbasis mobile dengan pendekatan desain antarmuka pengguna (UI) dan pengalaman pengguna (UX), menggunakan metode Design Thinking serta pengujian kegunaan dengan model PACMAD (People At the Center of Mobile Application Development). Metodologi Design Thinking diterapkan melalui lima tahapan: empathize, define, ideate, prototype, dan test, untuk mengidentifikasi kebutuhan pengguna, menghasilkan solusi desain, dan mengembangkan prototipe aplikasi. Selanjutnya, dilakukan pengujian kegunaan terhadap prototipe menggunakan tujuh parameter PACMAD: learnability, effectiveness, efficiency, memorability, errors, cognitive load, dan satisfaction. Hasil penelitian menunjukkan bahwa aplikasi prototipe dapat memenuhi kebutuhan pengguna dengan skor usability yang tinggi pada sebagian besar metrik PACMAD, antara lain learnability 72.34%, effectiveness 74.06%, efficiency 84.71%, memorability 89.38%, errors 91.41%, cognitive load 66.94%, dan satisfaction 83%. Skor usability akhir aplikasi ini mencapai 80.26%. Temuan ini menunjukkan bahwa penggabungan metode Design Thinking dan PACMAD menghasilkan aplikasi yang tidak hanya menarik secara visual, tetapi juga efektif dalam meningkatkan pengelolaan sampah dan kesadaran masyarakat tentang pentingnya daur ulang.

Kata Kunci: UI/UX, *Design Thinking*, PACMAD, Bank Sampah Digital, *Usability Testing*, Lhokseumawe

ABSTRACT

The issue of suboptimal waste management in Lhokseumawe City highlights the need for technology-based innovations to improve waste management efficiency and increase public participation. This study aims to design and test a mobile-based digital waste bank application prototype using a user interface (UI) and user experience (UX) approach, applying the Design Thinking method and usability testing based on the PACMAD (People At the Center of Mobile Application Development) model. The Design Thinking methodology is applied through five stages: empathize, define, ideate, prototype, and test, to identify user needs, generate design solutions, and develop the application prototype. Usability testing is then conducted on the prototype using seven PACMAD parameters: learnability, effectiveness, efficiency, memorability, errors, cognitive load, and satisfaction. The results show that the application prototype meets user needs with high usability scores on most PACMAD metrics, learnability 72.34%, effectiveness 74.06%, efficiency 84.71%, memorability 89.71%, errors 91.41%, cognitive load 66.94%, dan satisfaction 83%. The final usability score for this application is 80.26%. These findings indicate that the combination of Design Thinking and PACMAD results in an application that is not only visually appealing but also effective in improving waste management and raising public awareness of the importance of recycling.

Keywords: UI/UX, *Design Thinking*, PACMAD, *Digital Waste Bank*, *Usability Testing*, Lhokseumawe