

User Experience Evaluation on the Usage of Commuter Line Train Ticket Vending Machine

Authors : Faishal Muhammad, Erlinda Muslim, Nadia Faradilla, Sayidul Fikri

Abstract : To deal with the increase of mass transportation needs problem, PT. Kereta Commuter Jabodetabek (KCJ) implements Commuter Vending Machine (C-VIM) as the solution. For that background, C-VIM is implemented as a substitute to the conventional ticket windows with the purposes to make transaction process more efficient and to introduce self-service technology to the commuter line user. However, this implementation causing problems and long queues when the user is not accustomed to using the machine. The objective of this research is to evaluate user experience after using the commuter vending machine. The goal is to analyze the existing user experience problem and to achieve a better user experience design. The evaluation method is done by giving task scenario according to the features offered by the machine. The features are daily insured ticket sales, ticket refund, and multi-trip card top up. There 20 peoples that separated into two groups of respondents involved in this research, which consist of 5 males and 5 females each group. The experienced and inexperienced user to prove that there is a significant difference between both groups in the measurement. The user experience is measured by both quantitative and qualitative measurement. The quantitative measurement includes the user performance metrics such as task success, time on task, error, efficiency, and learnability. The qualitative measurement includes system usability scale questionnaire (SUS), questionnaire for user interface satisfaction (QUIS), and retrospective think aloud (RTA). Usability performance metrics shows that 4 out of 5 indicators are significantly different in both group. This shows that the inexperienced group is having a problem when using the C-VIM. Conventional ticket windows also show a better usability performance metrics compared to the C-VIM. From the data processing, the experienced group give the SUS score of 62 with the acceptability scale of 'marginal low', grade scale of "D", and the adjective ratings of 'good' while the inexperienced group gives the SUS score of 51 with the acceptability scale of 'marginal low', grade scale of 'F', and the adjective ratings of 'ok'. This shows that both groups give a low score on the system usability scale. The QUIS score of the experienced group is 69,18 and the inexperienced group is 64,20. This shows the average QUIS score below 70 which indicate a problem with the user interface. RTA was done to obtain user experience issue when using C-VIM through interview protocols. The issue obtained then sorted using pareto concept and diagram. The solution of this research is interface redesign using activity relationship chart. This method resulted in a better interface with an average SUS score of 72,25, with the acceptable scale of 'acceptable', grade scale of 'B', and the adjective ratings of 'excellent'. From the time on task indicator of performance metrics also shows a significant better time by using the new interface design. Result in this study shows that C-VIM not yet have a good performance and user experience.

Keywords : activity relationship chart, commuter line vending machine, system usability scale, usability performance metrics, user experience evaluation

Conference Title : ICAHFE 2016 : International Conference on Applied Human Factors and Ergonomics

Conference Location : London, United Kingdom

Conference Dates : January 19-20, 2017