



Abstract– Early childhood education is a very important stage to prepare early childhood to enter a higher level in basic education. Therefore, appropriate learning methods are needed so that children can be motivated to learn, because early childhood requires interactive and fun learning methods by playing. Based on observations and interviews conducted, early childhood education still uses conventional learning methods. The conventional learning method makes children feel bored while learning and less motivated to learn, especially recognizing the letters of the alphabet and numbers. Game-based learning is a learning method that is an innovation for early childhood learning because it can motivate children to be more enthusiastic in learning. According to existing research, mobile game-based learning is very effective in motivating early childhood learning. Children-centered design is used as a research method because this method places children as the main object of research. Quality in Use Integrated Measurement is used as a usability testing method. The user experience obtained from the results of the analysis will be implemented into a game-based learning application that suits the user's needs. The results of the tests carried out showed results of 87% for low personas, 91% for mid persona, and 95% for high persona.

Keywords: early childhood education, game-based learning, children-centered design, QUIM