Abstract

Child development at the early age requires a lot of help from their teachers or parents, because children need guidance to get better understanding about their world. According to Piaget's theory, the child's cognitive development is divided into 4 stages, namely Sensorimotor (born - 2 years), Preoperational (2 - 7 years), Concrete Operational (7 - 11 years), and Formal Operation (more than 11 years). Based on interviews with child psychologists, during the Preoperational period, the child's cognitive development should be able to understand how the environment conditions (which have been achieved in the Sensorimotor period), such as understanding the existence of objects, understanding the time of rest at night, and others. Therefore in this period, the child is targeted to understand the problem solving experience, mathematical concepts, letter identification, form recognition, etc. So that during the concrete operational period, the child's is ready to learn when they attend elementary school, jigsaw puzzle is an alternative to enhance that ability. Game applications in mobile devices can be used as an alternative to children's learning. This research is done by Child-Centered Design approach to gain perspective in developing this game application. Testing using the Quality in Use Integrated Measurement (QUIM) model. The user experience model generated from the analysis will be implemented into a jigsaw puzzle game application with a good usability level. From data testing that has done, the result is low persona (85.3%), mid persona (94.5%), and high persona (92.4%).

Index terms   : **early childhood**, **user experience**, **quality in use integrated measurement**, **children-centered design**, **preoperational, puzzle**