



## Learning Algebra through Game-Based Learning

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***Abstract***—Algebra is one of the topics of mathematics that every student must learn. It is the basic mathematics that involves using unknown or variable in the equation to solve the question in a simple way. One of the requirements for students to achieve excellence in mathematics education is succeeding in algebra education. But many students have found that learning algebra in school is not enjoy, textbooks lack visualization, and there are few educational games for algebra. For this reason, Learning Algebra through Game-Based Learning by implementing 3D modeling games into the mobile platform, making it easier for students to play and enjoy the environment of the game. There are three objectives implemented in this project, namely (1) to design a 3D modeling game-based learning application for algebra, (2) to develop a game-based learning application for algebra, and (3) to evaluate the enjoyment of algebra learning through game-based learning. The Game Development Life Cycle is used as a methodology in this project. 33 students participated in this study that examined the enjoyment and game mechanics of learning algebra. The evaluation used in this development was the EGameFlow model. The findings showed that 86.06% of the respondents agreed that they felt enjoyment from this game.

***Keywords***—learning, algebra, 3d modelling, game, mathematics