

# **The effects of gamification-based teaching math in higher education on student achievement and attitudes**

Jung Yeop Lee, Ji Young Woo

Soonchunhyang University, Republic of Korea

*\*e-mail:* [elises@sch.ac.kr](mailto:elises@sch.ac.kr), [jywoo@sch.ac.kr](mailto:jywoo@sch.ac.kr)

## **Abstract**

Media Labs College in Soonchunhyang University opened a compulsory course on mathematics education in 2018 entitled "Delicious Mathematics". This course teaches mathematical principles embedded in various games such as Catan, RumiCube, Pokemon Go, and Mafia games to first-year students of humanities. The students in this school are middle-class students who show the top 25-30% of the Korean SAT scores, and they are students who entered the humanities department because of fear of mathematics. Students must take courses in games, VR, robots, health care, etc., with multiple majors. At this time, basic math knowledge is required for students in the convergence major.

Delicious mathematics used pedagogy to enhance students' interest and engagement by using gamification techniques such as badges, progress, leaderboards, and missions. The presentation introduces the methodology of these different types of gamification, and introduces students to their effectiveness analysis through surveys and comparison of pre- and post-tests.

**Keywords** Mathematics Education, Gamification, Game-based Learning, Higher Education, Student Achievement and Attitudes