

# **The Impact and Effectiveness of Gamification Enhanced Mathematics through Digital Learning Platform in the Economic Hub of Lower Southern Thailand**

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## **Abstract**

The digital disruption has the essential role of learning change. The digital learning platform can motivate students to make practicing more interesting which in turn will improve learning performance and results, particularly Mathematics. The purpose of this experimental research is to study the impact and effectiveness of gamification enhanced Mathematics through digital learning platform in the economic hub of lower southern Thailand. The study was conducted by bilateral cooperation of public and private sector; Executive Education Enterprise, Prince of Songkhla University, Thai- Finnish Chamber of Commerce and Tutor e institute. Four innovative schools were selected for this study. The experimental group was 371 students which representatives of primary students (age 6-12). During 4 weeks of the experiment, the students had 1-3 mathematics lesson/week transformed into technology enhanced mathematics lesson using digital learning platform called Eduten which was rewarded the education prize by UNESCO in 2020 and the special EdTech Award by UNICEF in 2022. The results showed that the experimental group students who learned through the digital learning platform and gamification approach had positively impact on the students' attitude and motivation compared to the control group students. In addition, the focus group discussion with 4 Math teachers and 4 principals revealed the solid evidence that the gamification made a radical improvement in the students' performance. Learning from failure in gamified learning platform can increase the students' skill and confidence in Mathematics. Therefore, gamification and digital learning platform had positive impact and effectiveness in the economic hub of lower southern Thailand.

**Keywords:** game-based learning, primary education, digital disruption, Math performance, arithmetic fluency