The Effectiveness of Using BMCExpert on Computational Thinking among Students of the DFT30033 Cyberpreneurship Course

Nurul Dayana binti Mohd Dazid [1], Nur Syazwani binti Meli[2], Haslina binti Hassan[3], Mohd Kamarul Azriq Bin Yusof[4]

[1,2,3] *Jabatan Teknologi Maklumat dan Komunikasi, Politeknik Balik Pulau, Pinang Nirai, Balik Pulau, 11000, Malaysia*
E-mail: dayana@pbu.edu.my, syazwani@pbu.edu.my, haslinahassan@pbu.edu.my

[4]*Sekolah Kebangsaan Genting, Balik Pulau, 11000, Malaysia*
E-mail: mohdazriq514@yahoo.com

Abstract

This study investigates the effectiveness of integrating computational thinking specifically decomposition, through BMCExpert in enhancing student performance in the DFT30033 Cyberpreneurship course. A quasi-experimental design was employed involving 40 Semester 3 students divided into a control group (n = 20) receiving conventional instruction and a treatment group (n = 20) exposed to BMCExpert embedded with computational thinking elements. Student performance was measured using pre- and post-tests, and the data were analyzed using paired-sample and independent-sample t-tests. The findings indicate statistically significant improvements in both groups; however, the treatment group exhibited a substantially greater mean gain (21.85) compared to the control group (11.15). Moreover, the independent t-test revealed a significant difference in post-test scores between groups ($t = -5.506$, $p < .05$), demonstrating the superior effectiveness of the intervention. These results underscore the pedagogical value of integrating computational thinking with digital tools such as BMCExpert in fostering higher-order analytical skills and enhancing students' capability to systematically develop business models. The study contributes to emerging evidence supporting technology-enhanced learning approaches in cyberpreneurship education.

Keywords **:** *Computational Thinking; Decomposition,; Business Model Canvas; Digital Learning Tools*