

ARCADEMICS E-MATERIALS IN MULTIPLICATION OF WHOLE NUMBERS OF GRADE 4 LEARNERS

ABSTRACT

AUTHORS

Renalyn Gallardo
Roselyn Galo
Jedda Kabigting
Kyla Mae Nepomuceno
Angel Sinangote

RESEARCH ADVISER

Ryan Christopher M.
Villalon, PhD

AFFILIATION

Bestlink College of the
Philippines

DISCIPLINE

Education

KEYWORDS

multiplication skills; mci e-learning theory; grade 4 students; arcademics; interactive learning; student motivation

ARTICLE ID

AASGBCPJMRA-B79117

This study examines the effectiveness of Arcademics E-materials in teaching multiplication to elementary students. As technology becomes increasingly integrated into education, digital platforms like Arcademics offer interactive and engaging tools that can improve students' understanding of mathematical concepts. This research highlights how such e-materials support self-paced learning, provide immediate feedback, and supplement traditional teaching methods with a wide range of digital resources, particularly benefiting students who face challenges in learning multiplication. This research adopted a true experimental design using cluster sampling, involving 80 Grade 4 students divided into two groups: the Arcademics group and the Non-Arcademics group. To gather data, the researchers administered pre-tests and post-tests to measure academic performance, along with a survey questionnaire to assess student engagement, motivation, and interactivity. The collected data were analyzed using statistical tools such as frequency and percentage distribution, weighted mean, and z-tests to determine the effectiveness of Arcademics e-materials in teaching multiplication. The results showed that Arcademics had a significant positive impact on student motivation, conceptual understanding, and engagement. Students expressed strong agreement that the use of Arcademics enhanced their learning experience. Initially, both the Arcademics and Non-Arcademics groups demonstrated similar proficiency in multiplication during the pre-test. However, post-test outcomes revealed a substantial increase in performance among the Arcademics group, which recorded a mean score of 17.90, compared to 8.78 in the Non-Arcademics group. Statistical analysis confirmed a significant difference between the two groups ($p < 0.00001$), supporting the effectiveness of Arcademics in improving multiplication skills. These findings align with the MCI E-learning Theory proposed by Jeong Yong Ahn (2023). Despite the success, limited access to devices posed challenges to student participation and engagement. The researchers proposed a set of guidelines to effectively incorporate Arcademics into the curriculum. These guidelines emphasize the importance of providing clear instructions, using follow-up activities that relate multiplication concepts to real-life situations, and applying strategies that promote active student participation. The study underscores the potential of digital learning tools like Arcademics to enhance multiplication skills. It also highlights the critical roles of teacher proficiency, reliable access to devices, and the careful integration of educational technology to achieve optimal learning outcomes. \

RECOMMENDED CITATION

Gallardo, R., Galo, R., Kabigting, J., Nepomuceno, K. M., & Sinangote, A. (2025). Arcademics E-Materials in Multiplication of Whole Numbers of Grade 4 Learners. *Ascendens Asia Singapore – Bestlink College of the Philippines Journal of Multidisciplinary Research Abstracts*, 7(4), 70.