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Effects of the handheld technology instructional approach on performances of students of different achievement levels.

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Summary: The handheld technology selected and the ways it is implemented influences the way mathematics is taught and learnt, which in turn generates positive effects in the mathematics education. This study was conducted to examine the effects of handheld technology instructional approaches on performance of students of different achievement levels in probability at a private higher learning institution in Malaysia. A quasi-experimental study with non-equivalent control group design with pre-test and post-test design was conducted on a sample of 65 students. The sample was divided into the experimental group and control group. The handheld technology instructional approaches, i.e. teaching and learning approaches using the graphing calculator (GC) as a teaching and learning tool and the GC instructional worksheets, were employed in the teaching and learning of probability in the experimental group. The conventional teaching approach was adopted in the control group. Quantitative and qualitative methods were employed to collect and analyse data. Quantitative data was collected using the probability achievement test (PAT). PAT was administered to both groups at the beginning and end of the study. Qualitative data was collected using students' journals. The results show that students, the high, average and low achievers, gained benefits when the handheld technology instructional approaches were used in learning probability, particularly random variable, Poisson distribution, binomial distribution and normal distribution.

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