

Modeling E-Learning Implementation Level for Primary Schools in Nairobi County through Stratified Random Sampling

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Abstract

Recent policy initiatives on education have focused on improving access to education and retaining pupils in schools through equity and enhancing quality education. However, the Government of Kenya has not unveiled detailed programme that will be a roadmap in implementation of e-learning policies in Kenyan primary and secondary schools set in the year 2006 under the Ministry of Information and Communications. The Kenya Institute of Curriculum Development (KICD), formerly KIE, has worked towards production of e-learning content and materials but the consumption of digital print materials to be produced by publishers have been given little attention in terms of provision of ICT infrastructures at school level. Thus there has been a need to carry out a research to evaluate the e-learning implementation level in Kenyan primary schools. The findings of the research are of great benefit to scholars, government and education private developers. The mathematical equation on finite union of sets is based on the concept of set theory and probability theory models. The scholars will appreciate the utility of mathematical concepts in solving real problem wherefore the link may not be easily observed in usual instructions. On the other hand, the government may find this applied equation, a useful tool to be used in provision of ICT infrastructures at various education centres while emphasis is on equity of resources as exposed by the model. Both the government and private developers can use it to implement e-learning policies to a particular proportion or percentage. The research was carried out in Nairobi County by drawing three independent samples using stratified random sampling strategy from private and public primary schools. Neyman allocation scheme was applied in determination of strata sample sizes per region whereas purposive sampling was applied to obtained regions of the county. Similar questionnaires were administered to selected fifty-one schools and observation used concurrently. The research results are numeric vectors for mean of e-learning implementation level (Y) per stratum per region. The mean e-learning implementation level is greater than 40% in each of the stratum, though some regions have higher and others have lower values. From the Shapiro-Wilk test, all samples have the variable Y from non-Gaussian family except one case, prompting the non-parametric test. At 5% level of significance, Kruskal-Wallis test carried out shows that the sample per region per stratum forms a stratified population.

Keywords: Modeling E-learning, E-learning implementation level, Set and probability theory, Stratified random sampling

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