ACCESSIBILITY AND UTILIZATION OF INFORMATION COMMUNICATION TECHNOLOGY INFRASTRUCTURE ON TEACHING AND LEARNING OF ENGINEERING COURSES IN POLYTECHNICS IN KENYA

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ABSTRACT

Information Communication Technology (ICT) has brought about a paradigm shift in the educational and training system by providing new alternatives to the conventional classroom teaching and learning. This paper is a report of a study that was undertaken in the year 2020 on accessibility and the utilization of ICT infrastructure in teaching and learning of Engineering courses in national polytechnics in Kenya. The study was anchored on the Technology, Organization, and Environment (TOE) model by Tornatzky and Fleischer (1990). The study employed the Mixed Methods research approach and the descriptive survey research design. Stratified, simple random sampling and purposive sampling methods were used to select a sample of 48 trainers and 12 administrators from the departments of Mechanical, Electrical and Electronic, Automotive and Civil Engineering in 3 national polytechnics in Kenya. The data was collected using questionnaires, interview and observation schedules. The findings revealed that there was limited access of internet within the institutions. The institutions lacked adequate computers that trainers could use for teaching and learning since over 80% of the trainers used their own personal computers. It was found out that 54.8% of the trainers' accessed internet through their personal phones. Most of the classrooms lacked the required equipment such as the projectors, power sockets and Wi-Fi hotspots to facilitate ICT use during the training sessions. In addition, only 40% of the classes had interactive whiteboards. The utilization of ICT for teaching and learning Engineering courses was significantly low at an average of 26% for theory lessons and 14% for practical lessons. The study concluded that there were limitations on accessibility and utilization of ICT infrastructure in teaching and learning of Engineering courses in national polytechnics in Kenya. The study informs curriculum review and implementation for Engineering courses.

Keywords: Accessibility and utilization of ICT infrastructure; Engineering courses; teaching and learning; digital technology.