

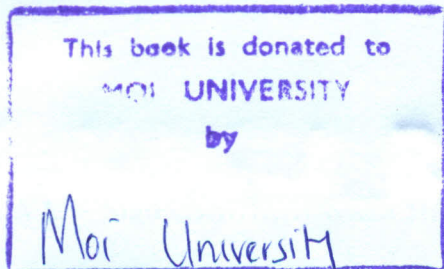
**CHALLENGES FACING LABORATORY PRACTICAL APPROACH IN
PHYSICS INSTRUCTION IN KENYAN DISTRICT SECONDARY SCHOOLS
A CASE OF NANDI NORTH DISTRICT**

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ABSTRACT

The purpose of this study was to find out the challenges facing laboratory approach in secondary school Physics instruction. It was carried out in the district category of schools with the major objective being establishing the challenges facing the approach. KNEC annual KCSE reports over the years have repeatedly pointed out that students need be exposed to more laboratory practical work in all sciences all along throughout their secondary school period. Thus the teaching, learning and performance in Physics is greatly influenced by laboratory approach. This method is rendered ineffective by the challenges it faces in schools. The study was guided by constructivist experiential learning theories. These theories explain learning as being constructed through transformation and re-organization of experiences on tangible activities. It also emphasizes on learner interactions and social contexts of learning as enhancing mutual construction of knowledge. In secondary school Physics instruction constructivist experiential theories focus on practical work as playing a major role in the teaching and learning process hence necessitate the use of laboratory practical approach. The study was conducted in the district category of schools in Nandi North District of Nandi County with the target population being all form three Physics teachers, all laboratory technicians and all form three students taking Physics subject. The study sample comprised of twelve district secondary schools chosen through purposive and simple random sampling techniques i.e. from all the categories of schools in the district purposive sampling was used to select district schools from which simple random sampling was used to select participating schools. Purposive sampling was also used to select Physics teachers and laboratory technicians who participated in the study. Simple random sampling was used to select form three Physics students who participated in the study. The study employed descriptive survey design with three types of questionnaires being data collection instruments i.e. teachers', laboratory technicians' and students' questionnaires. A pilot study preceded the research process during which the validity and reliability of research instruments was established and adopted for use. The research process began after acquiring permits from relevant authorities, during the study questionnaires were administered to respondents. At the time of the study two schools had no student respondents; three had no teacher respondents while five had no laboratory technician respondents. As a result ninety three form three students taking Physics, nine form three Physics teachers and seven laboratory technicians participated in the study. Data collected was coded and analyzed using SPSS Computer Programme. It was established that laboratory practical approach faces a number of challenges including: occasional use by teachers in Physics instruction, insufficient laboratory equipment, no Physics teachers and laboratory technicians in schools. These challenges rendered the approach ineffective in Physics instruction, thus compromise on learners' exposure to practical activities leading to poor performance in the subject. Based on the results recommendations were made with improvisation standing out as a major remedy. Schools should also at all times employ laboratory technicians trained in science laboratory practice. Recommendations made are beneficial to all educational stake-holders and will go along way in improving secondary school Physics instruction and performance. Thus lead to realization of secondary school Physics instructional & curriculum objectives, aims and national goals.