

The purpose of this study was to assess the emerging challenges facing Centre for Mathematics, Science and Technology Education in Africa (CEMASTEA) staff in improving the teaching of mathematics and sciences. CEMASTEAs is supposed to improve teaching of mathematics and sciences by promoting use of Activity for Students, Experiments and Improvisation (ASEI) and Plan Do See and Improve (PDSI) teaching approaches; however field evaluation reports show that teachers who have gone through the course are either partially or not using these approaches. Hence the study aimed at finding out the challenges teachers face when using ASEI/PDSI in teaching. The study was conducted at the CEMASTEAs centre, which is located in Karen Nairobi, Kenya. The target population comprised the Director, trainers, trainees and technical staff in the centre. The study participants comprised one Director who was purposefully selected, 12 trainers and 40 trainees who were selected by stratified sampling and thereafter, randomly selected, and 5 technical staff who were purposefully selected. The study employed descriptive research design. Data was collected using questionnaires for the trainees, trainers and interview guides for the CEMASTEAs Director and technical staff. Data was analyzed using both qualitative and quantitative procedures. Qualitative data were grouped into similar themes and reported thematically in line with the research questions. Quantitative data were analyzed using frequencies, means, and percentages. The study established that most training materials were adequate apart from audiovisuals and digital library materials. Subject dictionaries, computers, Internet, audiovisuals, digital library materials and audio materials were the most inadequate according to more than 50% of the trainees. The trainers lacked adequate skills to develop appropriate; activities for particular concepts in their subject areas, and trainers use different approaches in explaining the concept. Trainers also expressed lack of adequate exposure to certain experiments. The trainees faced various challenges when applying ASEI/PDSI skills in teaching. The already trained trainees felt that it is time consuming; they were not able to use the skill because of large classes; lack of the necessary materials to enable them to use the skills; lack of apparatus/specimen; inadequately equipped laboratories/science rooms; lack of exposure; and inadequacy of time. CEMASTEAs had neither started developing learning resources for use in schools nor conducting empirical research for innovative teaching. Majority of the trainees (65.0%) indicated that CEMASTEAs trainers visited their teaching stations to provide professional support. The study concludes that although CEMASTEAs programmes provide relevant and appropriate skills for student centered pedagogy, the institution faced challenges that have made it ineffective in addressing the in-service needs of secondary school teachers of mathematics and sciences as expected; had not met its entire mandate and was not responsive to findings of internal evaluations. In addition pertinent technological skills and concepts relating to information communication technology (ICT) have not been infused into the CEMASTEAs curriculum. Trainers should be retrained to enable them to prepare adequately and develop ASEI/PDSI skills effectively while the centre should be adequately equipped and prudently managed.