


Chapter 9

Professional Development of Mathematics and Science Teachers in Kenya: Program Implementation and Sustainability

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ABSTRACT

The Centre for Mathematics, Science, and Technology Education in Africa (CEMASTEA) provides continuous teacher professional development (TPD) to mathematics and science teachers to upgrade their pedagogical skills. This happens through the Strengthening Mathematics and Science Education (SMASE) program. The program, which started with in-service education and training (INSET) as the only TPD activity at its inception in 1998, expanded over the years to include other TPD activities. This chapter provides a description of SMASE program including the implementation of its TPD activities for teachers in Kenya and factors that have contributed to the sustainability of the program. It is clear that building a system

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for TPD requires not only resources but also a commitment from all stakeholders. To mitigate situations such as those caused by COVID-19 that limit face-to-face training, there is need for a blended teaching and learning (BTL) model that allows both face-to-face and online training.

INTRODUCTION

The adoption of the 2030 Global Agenda specifying 17 Sustainable Development Goals (SDGs) including Goal #4 on education by the world global community in 2015 was a clear indication that education is critical in the realization of sustainable development. Goal #4 focuses exclusively on ensuring quality education and opportunities for lifelong learning for all. Inherent in this goal is the implication that education should not only be for all without exceptions but also of good quality. While there may be many factors that need consideration in the delivery of quality education, teachers are the single most important factor that influences teaching and learning outcomes (Darling-Hammond et al., 2017; Hooker, 2016). Kenya, like many other countries recognises the important role teachers play in ensuring quality education for all learners. Top on its agenda is the issue of teacher qualification, and quality. Regarding teacher qualification, it is a requirement for all people aspiring to be teachers in Kenya to obtain the basic professional qualification before they apply for registration as teachers. Furthermore, the Government of Kenya through the Ministry of Education (MOE) recognizes the need for teachers to continue honing their pedagogical skills. The MOE has put in place mechanisms to ensure this happens. One institution that not only helps the MOE to ensure improvement in teachers' pedagogical skills but also implements and tracks progress on Teacher Professional Development (TPD) for mathematics and science teachers is the Centre for Mathematics, Science and Technology Education in Africa (CEMASTEА).

CEMASTEА plans and coordinates the implementation of all TPD activities under the Strengthening of Mathematics, Science Education (SMASE) program. The program that started in 1998 as Strengthening of Mathematics and Science in Secondary Education (SMASSE) project for secondary school teachers covering only a few districts then, expanded over time to cover the whole country. It also expanded to include not only primary school teachers but also teachers of subjects other than mathematics and science. At the inception of the project, teachers participated in the in-service education and training (INSET) as the only TPD activity. However, with time, teachers started participating in additional TPD activities that include Lesson Study, Information Communication Technology (ICT) training as well as Science

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