Implementation of SESEMAT In-service Pedagogical Strategies and Students' Achievement in Science at Ordinary Level in Tororo SESEMAT Region, Uganda

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Declaration

I,Deborah Manyiraho, hereby declare that this is my original work, and has not been, to the best of my knowledge, presented for any award in any other university or institution of learning.

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Approval

This dissertationtitled "Implementation of SESEMAT In-service Pedagogical Strategies and Student Achievement in Science at Ordinary Level in Tororo SESEMATRegion, Uganda" was written by Deborah Manyiraho(BU/GS 17/EDM 6) under our supervision, and has been submitted with our approval.

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Dedication

I dedicate this work to my parents Mr. and Mrs.Manyiraho; my beloved husband Mr. Thomas Nakhaima; and my children Esther, Mark, Ednah, and Matthew.

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Abstract

This study aimed to establish whether implementation of SESEMAT in-service pedagogical strategies has resulted in improved student achievement in science at secondary schools in Tororo Region. A cross-sectional survey research design was adopted. Quantitative and qualitative data were collected from a probability sample of 380 S.4 students; and a non-probability sample of 20 administrators, 12 teachers, and 12 regional trainers. The results revealed that SESEMAT strategies were being implemented generally at a moderate level (M = 19.88, S.D. = 4.49). Assessment by testing was by far the most implemented activity while lesson study was the least. Student achievement was generally high($M = 37.96$, $SD = 5.70$) while the strategies greatly enhanced teachers' knowledge and practices (M = 35, S.D. = 5.40). Teachers' classroom practices had a strong total positive mediation effect on the link between implementation of SESEMAT in-service pedagogical strategies and students' achievement in science. ($z = .16$, $p < .01$, $k^2 = .28$). The study concluded that the implementation of SESEMAT strategies enhanced teachers' knowledge and classroom practices in Tororo Region, boosting student achievement in science in terms of attitude change, skills acquisition, and daily life application. However, the level of academic performance was still low. The study recommends improved monitoring of the implementation of SESEMAT strategies in addition to, SESEMAT trainers helping the science teachers to intensify the use of interactive strategies to enhance learners' understanding of the subject matter.

Chapter One

Introduction

Background of the Study

Science teaching and learning has been the emphasis of both the developed and developing countries because science and technology are key to social and economic development (Mormina, 2018). Despite theemphasis on science, students' achievement in sciences leaves a lot to be desired. There is worrying low achievement of students in science disciplines world over, yet science is supposed to have positive impacts on agriculture, health, communication and other spheres of life. Countries have henceforth devised innovations to improve students' achievement in science. In Japan, a science education promotion law was enacted to regulate the standards of teaching aids so that every child has an opportunity to learn science (Tsukahara, n.d.). Other developed countries such as the US, Malaysia, and Britain have also put interventions in place to raise students' achievement in science. For example, the Malaysian ministry of education has been implementing lesson study at school level (Iksan, Nor, Mahmud, & Zakaria, 2014). However, PISA results in 2015 showed that students in the US were lagging behind other industrial nations in academic achievement in mathematics and science (Desilver, 2017).

On the African continent, the Strengthening of Mathematics and Science Education in Western, Eastern, Central, and Southern Africa (SMASE-WECSA) platform was created for countries to share experiences in, and knowledge of, mathematics and science education (JICA, 2010 cited in Ishihara, n.d.). Sessay (2015) explains that the SMASE-WECSA platform saw the governments of Kenya and Japan (through JICA) set up the SMASE program in response to the poor performance in mathematics and science in Kenya Certificate of Secondary Education

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