

ABSTRACT

The Activity, Students' Experiments and Improvisation (ASEI) teaching innovation was started in Bungoma Central Sub-County in the year 2004, for mathematics performance enhancement. Despite the implementation of ASEI innovation in Bungoma Central Sub-County since 2004, the Sub-County has declining mean scores in Kenya Certificate of Secondary Education (KCSE) mathematics since 2008 as follows 2008 (3.403), 2009 (3.126), 2010 (3.044), 2011 (2.962) and the performance in some eight schools has been declining or erratic. KCSE is a standardized instrument for measuring performance at form four level and mean scores range from 1 to 12. The success of ASEI as a teaching innovation depends on the attitude of mathematics teachers, strategies used and challenges faced. What was unknown was the mathematics teachers' attitude, strategies used and challenges faced, the knowledge gap this study sought to fill. The purpose of this study therefore was to establish the attitude, strategies and challenges of mathematics teachers in the implementation of ASEI innovation in public secondary schools in Bungoma Central Sub-County. Objectives of this study were to; establish attitude of mathematics teachers towards implementation of ASEI innovation, establish the strategies that mathematics teachers use to implement ASEI innovation and establish the challenges that mathematics teachers face in the implementation of ASEI innovation. A conceptual framework was used in which attitude of mathematics teachers; strategies used and challenges faced interacted to determine successful implementation of ASEI innovation. This study used descriptive survey research design. The target population included 2 DQASOs, 15 Principals, 15 Deputy Principals, 15 HODs and 42 teachers. A sample comprising of 2 DQASOs, 14 Principals, 14 Deputy Principals, 14 HODs and 38 teachers were selected through saturated sampling technique. The interview schedules and questionnaires were presented to research experts to ascertain their content validity while a pilot study involving 4 teachers conducted to determine reliability of the research instruments. Data was collected using questionnaires and interview schedules. Quantitative data obtained from questionnaires was analyzed using descriptive statistics in the form of means, frequencies and percentages. Qualitative data was transcribed and analyzed and reported in emergent themes and subthemes. The study established that Mathematics teachers' had positive attitude towards implementation of the ASEI innovation with overall mean rate of 3.08 for schools with declining performance and negative attitude with an overall mean rate of 2.95 for schools with improved performance. The study also established that teachers used seven main strategies; team teaching, motivation, peer lesson study, group work, regular internal inspections and adequate use of resources. The study established that mathematics teachers experienced the challenges of limited time, negative attitude towards mathematics, low entry behavior, understaffing, inadequate resources, large class size, unsupportive administration and un-co-operative colleagues in the implementation of ASEI innovation. Qualitative data revealed proper record keeping and checking students' work as strategies while absenteeism and lack of incentives were challenges in the implementation of ASEI innovation. The findings of this study are significant to policy makers, school administrators and teachers in enhancing good performance in mathematics in Bungoma Central Sub-County.