The role of school environment and pedagogical approaches in enhancing students' acquisition of science process skills in Mbeya

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PhD (Education)
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This study investigated the role of school environment and pedagogical approaches in enhancing students' acquisition of science process skills in Mbeya. The study was guided by four objectives: to examine school environment and how Biology teachers use the environment to support the teaching and learning of science process skills; to explore Biology instructional activities that support students' acquisition of science process skills; to assess the extent to which students acquire science process skills during and after conducting Biology practical work; and identify the challenges Biology teachers and students face during teaching and learning for development of science process skills. The study was guided by pragmatic paradigm that enabled the researcher to employ mixed methods research approach to collect and analyze data. Moreover, the study used multiple-embedded case study design to study how Biology teachers used school environment to support students' acquisition of science process skills; and how instructional activities supported students' acquisition of science process skills. One group pre-test post-test experimental design was employed to find out students' acquisition of science process skill during and after Biology practical work. Reliability of instrument (test) used for data collection was moderate with Reliability Coefficient of 075. Qualitative methods such as observations, interviews, documentary review and focus group discussion were used to collect qualitative data while test was used to collect quantitative data such as students' test scores. Qualitative data were analyzed by using thematic analysis while quantitative data were statistically analyzed by the aid of computer program called Statistical Package for Social Sciences (SPSS) version 20. SPSS was used to perform paired sample t-test. The findings revealed that Schools 1 and 2 had Biology teachers, physical resources such as classrooms, laboratory materials, teaching and learning materials such as models, specimens and Biology textbooks. However, they were insufficient to support effective teaching and learning of science process skills. Method and questions and answers approaches that subjected students into instructional activities such as listening, writing notes, answering questions, and drawing diagrams. Such approaches supported development of few basic science process skills such as communication, observation and classifying. Moreover, the results indicated that there was a significant difference in students' mean scores in science process skills between pre-test as students' mean score in pre-test was (M=7.959, S.D=3.224) and post-test (M=13.513, S.D=4.972) with mean difference (t=11.101, p=0.000). furthermore, the findings suggested that there were challenges biology teachers and students faced in teachers and physical resources such as classrooms, laboratory materials, and lack of ICT facilities; large classes and lack of laboratory technicians. Based on the findings, it was concluded that students' acquisition of science process skills is a process that depends on many factors including supportive school environment and the use of inquiry-based instructional activities. Therefore, the schools need to

be supplied with funds, adequate number of qualified Biology teachers, laboratory technicians and physical resources such as furnished classrooms, ICT Facilities and laboratory materials.