

**ACQUISITION OF SCIENCE CONCEPTS AND SKILLS BY
KENYAN PRIMARY SCHOOL PUPILS: THE INFLUENCE
OF CULTURE AND LEARNING OPPORTUNITIES**

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THESIS

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Abstract

The performance of pupils in science in the Kenya Certificate of Primary Education (KCPE) examination has continued to be poor compared to other subjects. This poor performance is blamed on the difficulty and abstractness of some topics in the science syllabus and poor teaching. What has, however, not been addressed are the circumstances of the learners, more specifically, the cultural factors. If improvement has to be made, then an understanding of traditional modes of belief about the natural world is necessary. This study investigated the influence of cultural factors and learning opportunities provided in primary science lessons on the pupils' acquisition of science concepts and skills. Survey and case study methods were used in this study. The study sample comprised 196 standard 8 pupils and 8 teachers from 8 rural primary schools in Bomet, Gucha, Rachuonyo and Transmara districts. A focus group of 32 pupils was interviewed together with 8 elders knowledgeable on their communities' cultural beliefs and practices. Pupils' explanations for selected natural phenomena were investigated using a free-response questionnaire. Tests were used to assess the pupils' mastery of science process skills, science concepts and the English language. A checklist was used to investigate the science equipment and apparatus available in the schools. A free response questionnaire was used to explore the factors that affect practical science lessons. A total of 17 standard 8 science lessons were observed. Both qualitative and quantitative data were generated. Content analysis was applied on qualitative data while the quantitative data was analysed using the Pearson product moment correlation coefficient and one way ANOVA. Statistically significant findings were tested at the 0.01 level for the Pearson correlation coefficient and at the 0.05 level for one way ANOVA.

The findings of this study suggest that cultural factors and learning opportunities provided in science lessons affect the pupils' learning of science. The findings also indicate that pupils hold alternative frameworks on natural phenomena, which have cultural interpretations and these, seem to affect their meaningful learning of science. The findings further suggest that grandparents, parents, siblings and teachers are the major sources of pupils' alternative frameworks. They also indicate that the learning opportunities provided in primary science lessons are inadequate for effective learning of science. Lastly, the findings indicate that the learning of science process skills is knowledge dependent and a significant difference in achievement in science by pupils from some cultural groups was identified. The implications of the findings are discussed.

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