Mathematics in the Historic Environment

There exists a relationship between Mathematics and the local history/ environment and the community around a local school can be used as a resource in teaching of Mathematics. This conference paper is part of a project Mathematics in the Historic Environment, collaboration between Kenyatta University, National Museums of Kenya, Linnaeus University and Kalmar läns museum. The project tries to improve the teaching and learning of Mathematics both in Kenya and Sweden. Although Mathematics is a very important subject in the curriculum, its performance has been dismal in the two countries partly because of poor methods of teaching and negative attitude towards the subject. A new method of teaching Mathematics is proposed which tries to make the subject concrete and alive to the learners by using their immediate environment. The teacher of Mathematics must not only be familiar with Mathematics content at a given level but also understand the local community where the school is located. This will enable him/ her to relate the content to what is familiar and available in the child's environment and therefore teach from known to unknown.

There are four categories of community resources which are available in the community and could be used in teaching: people (experts in Mathematics concepts, patterns, and shapes); places (avenues of Mathematical value where students can visit); events taking place in the community and specific objects/ models. In order to use the community as a resource there is need for support, goodwill and cooperation from: Local community, leadership and parents; Mathematics teachers; head teachers; National Examination Council which should incorporate local environment in their assessment; curriculum developers; Quality Assurance Officers to check on whether the new approach is being used and teacher training institutions to train the teachers in the new approach.

There are several benefits of using the local heritage in mathematics education which include making learning interesting, real, relevant, and easy to understand and apply not only at the classroom level but also in everyday life. This will eventually lead to improved performance and preparing learners for effective role in the society. It also improves school- community relationships and develops the community. The implementation of this approach is likely to face challenges: Inadequate time for covering the wide syllabus; large classes; lack of expertise on how to use the local environment; an examination-oriented curriculum and also lack of cooperation from heads of school and education stakeholders. But all of these challenges are able to overcome in order to make Mathematics Education more meaningful and relevant.

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