

Cultural Mathematics Strategies Towards Quality Education

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Introduction

Mathematics as basic and compulsory subject, it's faced with many challenges that drive to poor performance in secondary schools particularly in Zanzibar. Different alternatives have been used to rectify the performance in mathematics but the grades keep dropping. The data from National Examination results shows that the performance of mathematics in Tanzania is poor yearly in comparison with other subjects which ranges between 7 to 12 percent's. So there is a need to deploy various mechanisms that will drive the performance in mathematics as a way of achieving quality education (SDG 4).

This project deployed the practice of culturally appropriate mathematics learning strategies in secondary schools in Tanzania in order to bring a better performance. The project involved the use of cultural reference, cultural methods, and cultural techniques and illustrations and example which considered as appropriate and friendly for learning. The project has designed to achieve SDG 4, which is improving the quality education



Method

In this project we applied the method of online test as a way of collecting data. The test was designed for form one students and the two topics were considered which are Fractions and Areas and Perimeters. A series of activates and various steps were made to conduct the data.

Step 1. Selecting the participants of the project: The number of secondary schools in the urban west region is 62, so we divided by 5 to get 12, the we applied simple random techniques to select after every 12 schools we selected one, until we ended with five (5) schools in total. To keep this research confidential, we named them school A, B, C, D and E.

In the cultural appropriate group, the teaching method was compiled with the following matter. Firstly we were insured that the teaching language is Swahili throughout the whole teaching sessions rather than English. And the examples that we gave them involved the things that happen in real Tanzanian situations only. For example; one of the question discussed is

- A dalala has the capacity to carry 30 passengers, but Ali the conductor allowed 42 passengers in the dalala. What fraction of these passengers are over the capacity limit? - A farmer planted 560 seeds in his garden. Only 50 of those seeds germinated. What fraction are the seeds that failed to germinate? - A car wheel has a radius of 30 cm. How far does the car travel when the wheel rotates 3,000? Some of the question were directed to help them on applying mathematics knowledge in their homes. For example, what fraction of lime would they need to make curry taste better? Or what amount of carpet would they need to cover their whole sitting room perfectly? And so on. And all the materials we used to make examples for them are all the things that can be found in Tanzania and the ones that they know of, like carpets, dalala, seeds, car wheels and among others.

On the other hand the question from the second topic Areas and perimeter, the second group were instructed using the shapes like Box, paper and water bottles and the question were directed to measure using taps and other local measurements. It was real shows interest to learners.

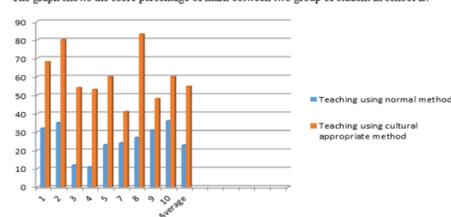
ILLUSTRATIONS: The concept of fraction using Real things available in our communities



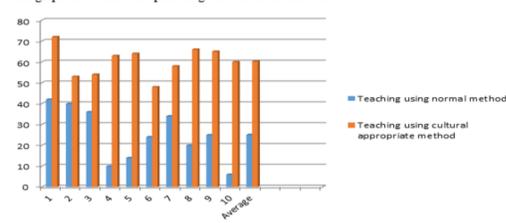
Results

These results shows that average score for group one students taught using normal method of teaching is 25.8% which is Failure "F" while the score for group two students taught using cultural appropriate method is 62.6% which is equivalent to "C". Therefore using this approach the percentage of mathematics can be improved and the performance will be better.

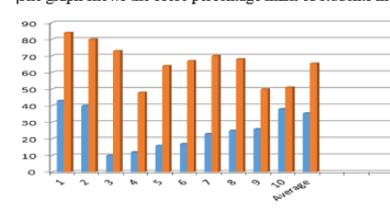
The graph shows the score percentage of mark between two group of student in school B.



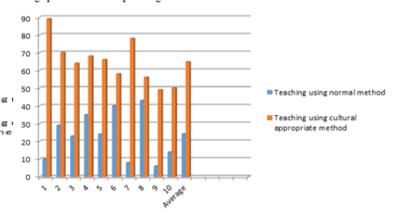
The graph shows the score percentage of student in school C.



The graph shows the score percentage mark of students in school D



The graph shows the score percentage mark of student in school E.



Conclusion

In conclusion, there is a need to deploy cultural appropriate strategies in teaching /learning mathematics in order to increase interest to the learners and final to improve the performance

due to the fact that students can only understand things if they are given relevant examples or if they are taught under favourable affordable conditions since better science need mathematics. This project gave us the indication that students can pursue excellent using cultural appropriate rather than normal teaching approach. Students also shows much interest when they are teaching using this method and final place them to love the subject. Since mathematics is a compulsory subject from primary to secondary level, so the performance in mathematics can determine the quality of education, therefore teaching using cultural appropriate approach will drive the Zanzibar education system towards the quality education so as to achieve goal 4 of SDGs.

Acknowledgments

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