

AN INVESTIGATION INTO THE COMPETENCY LEVEL OF PIVOTAL MATHEMATICS TEACHERS (A CASE STUDY OF BICHI LOCAL EDUCATION AUTHORITY (L.E.A) KANO STATE)

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Abstract

The Federal government in 1999 launched the Universal Basic Education (UBE) program, which led to the massive influx of pupils into the primary schools without corresponding increase in the qualified teaching personnel. Considering this shortage, the government urged the National Teachers Institute (NTI) to design and run the Pivotal Teacher Training Program (PTTP). This program is observed to be a negation of the provision of the National Policy on Education, which made NCE the minimum teaching qualification in our educational system. It is on this basis that this paper assessed the competencies of the PTTP products on one hand and the NCE teachers now teaching in our primary schools on the other. The result indicated a significant difference in the competencies of the two groups and further showed that the PTTP cannot produce teachers that could effectively translate the primary Mathematics curriculum.

Introduction

Education in general and Mathematics education in particular is the key to the development of any nation. This is so, as Mathematics is the root of science and technology. Therefore, techno-science advancement can only be achieved in a developing nation like ours when teaching and learning of mathematics is given due attention especially at the foundation stage (primary school). Ezeilo (1975) buttressing this fact observed that there could be no real technological development without Mathematics.

Primary Education is one of the most important levels in the educational system. The National Policy on Education (1998:2) referred to it as that education given to children between the ages of 6 to 13+. The significance of this level as pointed out in the policy is that it is the level of education on which all the subsequent levels are built upon. This means primary education is the key to success or failure of the whole education system. On this basis therefore, sound foundation in mathematics is imperative for successful achievements of educational goals designed for primary education. The goals (among others) include:

The inculcation of permanent literacy and NUMERACY and the ability to communicate effectively;

The laying of a sound basis scientific and reflective thinking;

Giving the child opportunities for developing manipulative, skills that will enable him to function effectively in the society within the limits of his capacity.

The teacher is an important factor in the achievement of the aforementioned goals. He is the key to effective instructions and translations of the curriculum. As expected by the National Policy on Education (1998), the teacher should be effective and have mastery of the subject matter that could help him in translating any educational policy. The NPE identified this unique role of a teacher as it states that: "no system can rise above the quality of its teachers". Thus, it made the Nigeria Certificate in Education (NCE) to be the minimum teaching qualification at all educational levels.

Having in mind that the quality of any education programme is a function of the quality of its teacher, one observed with dismay that it is the least trained of our teachers that teach in primary schools.

Maduabum (1991) stressed the shock when he said it is a national suicide for any nation either by design or accident to have the best brains in other professions while its poorest brains educate its youth.

The Federal Government 1999 launched the Universal Basic Education (UBE) programme which led to the massive influx of pupils into our primary schools without a corresponding increase in the number of quality teaching personnel (especially in science and mathematics).

In an attempt to remedy the above stated problems, the Federal Government instructed the National Teachers Institute (NTI) to organize and run the Pivotal Teachers Training Programme (PTTP) in order to meet the nation's urgent need for qualified teachers for the successful implementation of the U.B.E Programme. The programme is an induction course for Senior Secondary School leavers such that they can have the required skills to teach effectively in the primary schools (PTTP undated).

As we may all believe, competency is an important quality in any job. An incompetent Medical Doctor for instance puts the lives of his patients to great risk. The same could be said about an incompetent mathematics teacher. Since his altitude towards mathematics concepts could misguide his pupils and make them have negative attitudes towards the subject. Considering the nature of pivotal students most of whom, failed mathematics at Senior Secondary Certificates Examinations (SSCE) or its equivalent, it is unlikely that they would transmit the desired experience to their pupils. From the above observations, one can aptly deduce that the PTTP is a negation of the provision of the NPE (which is the master plan designed for basic scientific and technological development in Nigeria), which made NCE the minimum required teaching qualification.

Research Questions

Is Pivotal Training adequate to produce qualified mathematics teachers in primary schools that could give the pupils the desired experiences they require?

Research Hypothesis

The following hypothesis guided the study.

Ho: There is no significant difference in the level of competence between pivotal and NCE mathematics teachers.

Research Design

The research was carried out using seventy (70) mathematics teachers as subjects: thirty five (35) pivotally trained mathematics teachers as one group and thirty five (35) trained NCE mathematics teachers as another group. The subjects were randomly selected from primary schools in Bichi Local Authority (L.E.A). Each subject was given a teacher-made test of twenty (20) multiple-choice items. The test contains some mathematical problems designed from the primary school mathematics curriculum and each subject responded to the items individually. The researcher scored the test: each item was scored one (1) point. Thus, the maximum score is twenty (20) and minimum zero (0) marks. After marking, the scores were subjected to statistical analysis.

Data Analysis

The t-test was used to check the position of the hypothesis already stated. Table 1 gives the summary of the data collected with respect to pivotally trained teachers and trained NCR teachers.

Table 1: The Mean Achievement Score and Standard Deviation of the Subjects

Group	No of Subjects	Mean Score	Standard Deviation
Pivotally trained Teachers	35	4.40	2.06
NCE trained mathematics teachers	35	13.09	3.72

Table 2: The Mean J-tandiird Deviation and T- Value of the Subjects

Group	N	Mean Difference	SD	t-cal	t-crit/tab	DP
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Pivotal trained mathematics teachers	35		2.06			
		8.69	0	$t_{11} = 1.68$	1.68	68
NCE Trained mathematics teachers	35		3.72			

Significant at $P < 0.05$. Where *df = degree of freedom.

The null hypothesis is rejected as it can be observed from Table 2 that the T calculated (12.13) is greater than the critical/table 't' value (1.68). In other words, there is significant difference in the competency level of pivotal and NCE mathematics teachers.

Results and Discussion

The rejection of the null hypothesis indicated that there is significant difference in the level of competencies between pivotal and NCE trained mathematics teachers in Bichi Local Education Authority (LEA) of Kano State. This result further confirmed that of Lassa (1978) and Barber (1984), that the pivotal mathematics teachers do not have the mastery of the primary school mathematics content expected of them, thus incompetent to teach mathematics. Can one imagine how incompetent mathematics teachers are poured out to teach the subject in primary and junior secondary school level. The programme (UBE) would be ineffective as far as teaching and learning mathematics is concerned if pivotally trained teachers are engaged to teach in the primary schools. These types of teachers cause more harm than good as they could enhance pupils' negative attitude toward mathematics right from the foundation level. The difference in the competency levels of the two groups may be due the fact that:

There is a vast difference in the quality of personnel that teach the two different programs. The ones that teach in colleges of education (COE) are more qualified. In contrast, the pivotally trained mathematics teachers are taught, by mostly secondary school teachers that suffered from neglect in the past and had taken teaching as their final resort (Daudu, 2000). These types of teachers have less interest in teaching their subjects and thus may not provide the pivotal students the desired experience.

- Duration of the programs is an important factor that could be responsible for the difference. The NCE programs are designed for three (3) years of six (6) semesters. For instance, a trained NCE mathematics teacher to be, has 105 contact hours (face-to-face-teaching) in a fifteen (15) week first semester of NCE 1. The pivotally trained mathematics teacher on the other hand has a total of eighty-five (85) contact hours. This implies that the programs emphasized self-study, which may not provide the expected experience to the pivotally trained mathematics teachers. (PTTP, undated).

Supervision in any educational programme is very vital. In NCE programme, there is sufficient supervision due to the proximity to the constituted authority responsible for the maintenance of quality in the programme. Pivotal teachers training programme on the other hand, suffers lack of such supervisions. This is understandable as it involves a lot of financial burden since the supervisory agency is far away from the training centres. Entry requirement: the set down minimum requirement for NCE programme nationwide needs at least a pass in Mathematics and English at Senior Secondary Certificate Examination or its equivalent (NCCE, 2003) to gain admission into an NCE programme. A mathematics teacher to be needs a credit in mathematics in addition to other requirements. This is to control the quality of NCE programme right from admission stage. The entry requirement for PTTP is a minimum of three (3) passes in any subject as S.S.C.E or its equivalent. This means, candidates with outright fail in mathematics at S.S.C.E. may undergo PTTP and go to primary school to teach the 'golden' subject. In other words, those who do not have the requirement for admission into NCE programme are admitted to join the PTTP.

It could be observed from the above that the dividing line between pivotally trained teachers and NCE trained teachers is very clear. The pivotally trained teachers have not met the required mastery of subject matter that could give them the ability to teach in our primary schools. Maintaining them in the system will mean poor education rather than the functional education needed for individual self-reliance.

Conclusion

The Universal Basic Education (UBE) is a programme that can assist in laying sound foundation in science and technology when implemented systematically. Mathematics being the foundation for effective attainment of technological growth deserves a special consideration during the implementation of the policy. There is need therefore, for qualified mathematics teachers in primary schools that can give the desired experience to our pupils. Otherwise, the subjects would be 'stamped black' right from the primary school.

Recommendations

Based on the foregoing, the following recommendations are offered:

- Federal Government should not lower the minimum teaching qualification below the Nigeria Certificate in Education. This would serve as an important quality control for education especially at primary schools level.
- Federal Government should stop the PTTP and direct all its resources to the training of teachers to the minimum professional level. More so, any teaching qualification below NCE should not be legalized in the country.
- Teachers currently in our primary schools without minimum requirement should be made (as a matter of compulsion) to attend in-service training to enable them acquire (atleast) the minimum teaching requirement.
- More funds should be channeled to Colleges of Education In order to enable them produce enough qualified teachers for the successful implementation of the UBE programme.

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