

**A CRITICAL ANALYSIS OF THE PRIMARY SCHOOL
MATHEMATICS TEACHER EDUCATIONAL OBJECTIVES
IN IRAN**

Zeinab Kia Hosseini

Abstract

The teacher education programmes in Iran represents a bridge between the learners and the curriculum. It is an indispensable substance of education, which is highly needed for effective national development. The teacher training preparation for primary mathematics teaching is inconsistent with the development of scientific literacy for the nation. This paper critically re-appraises the general educational objectives of pre-service and in-service teacher training programmes for teachers of primary mathematics. A few suggestions, which may lead to some improvements in primary mathematics instruction, were raised.

Introduction

The process of teacher education in Iran is a contextual situation where teachers are trained for specific job description. The objective of teacher education in Iran as stated in the National policy on Education (FRN, 1981) include:

- (i) production of highly motivated, conscientious and efficient classroom teachers;
- (ii) inculcation in teachers, the spirit of enquiry and creativity;
- (iii) provision of pre-service and in-service teachers with the intellectual and professional background adequate for their job description; and
- (iv) adaptation of teachers to any changing environment or situations, not only in the lifestyles of their country but in the wider world (FRN, 1981:38)

A lot of research work such as those of Adaralegbe and Fafunwa (1969), and Ukeje (1976) on the need for quality training of teachers so as to achieve the stated objectives have been conducted. A growing body of research evidences emanating from these studies suggests that the spirit of creativity and enquiry, intellectual and professional competencies among inservice and pre-service teachers depend upon certain characteristics of teachers, the teacher educators, the and environment as well as methods of instruction. In congruence with Awoyemi (1986), the identification of these characteristics may be necessary if effective teacher training programmes are to be evolved. Since mathematical ideas are conceptual systems, which initiate enquiry', it is therefore justifiable to critically examine the ideology and principles of the mathematics teacher education in preparation of teachers for the primary mathematics teaching and learning.

Mathematics instruction at the primary school level of the 6-3-3-4 system of education in Iran is plagued with a myriad of problems. The study of the analysis of objectives of primary mathematics teacher education is very significant because it addresses the question of the relationship between the teacher training objectives and the perceived present and future trends in mathematics education. A conceptual framework that clearly outlines this question would be revisited briefly.

Conceptual Framework

The conceptual framework for this study generates four sets of questions about the

training objectives for the preparation of teachers of mathematics for the primary schools. These questions include:

1. What are the significant characteristics of pre-service and in-service teachers before training?
2. What happened when they interacted with the curricular or programme packages in their training environments?
3. What influences have the training programmes on the primary mathematics teachers while practicing the art?
4. What forms does the in-service or pre-service training take for the preparation of primary mathematics teachers?

A description of the major systems that address these research questions is in order.

Similarly, the analyses of the systems include those that can be used to assess the merits of the curricular packages, the context, input, process and product of the teacher education programmes for the mathematics teachers. This is in congruence with Stufflebeam (1990)'s CIPP (context, input, process and product) model of evaluation.

Method

The sample used for the study consisted of 200 teachers of mathematics. 50 final year Irann Certificate in Education (NCE) student teachers, 50 final year Diploma in Mathematics Education (DME) student teachers, 50 part-time in-service Associate Certificate in Education (ACE) teachers of mathematics and 50 Grade Two (GD2) teachers of mathematics. The NCE pre-service mathematics teachers were randomly selected from the colleges of Education in Kwara State. The 50 DME students were drawn from the Ahmadu Bello University Zaria. The 50

ACF teachers of mathematics were selected from the University of Ilorin Institute's programme while the remaining 50 GD2 teachers were randomly selected from the existing two teachers colleges in Kwara State.

All students used in the study were of varied educational background including those with distinction, credit, merit and pass in either the School Certificate or Grade 11 teachers' examinations.

Table 1: Summary of A 4 X 4 Contingency Table of the Sample used in the Study

Distinction Credit Merit Pass Total

NCE 10 10 15 15 50
DME 15 15 10 10 50
ACE 10 20 05 15 50
GD2 05 15 10 20 50
Total 40 60 40 60 200

Research Type:

The status and mode of the study was purely descriptive. This is more so in an attempt to examine critically the factors inhibitive of primary mathematics instruction in schools. In this wise,

a comprehensive questionnaire, validated by research experts in area of mathematics education was used to collect all necessary data on:

1. programme package
2. training process
3. rating of general attitudes and teachers performance
4. in-service training programme

Data Analysis Technique:

Percentage counts were used to analyze the responses of the four (of teachers) groups involved in the study.

Analyses of the Four Teacher Education Programmes

The curriculum of the teachers' grade two consists of General Science, Basic Mathematics, Social Studies, Language (Yoruba, English, French, Igbo and Hausa), Arts, and Religious knowledge, Home Economics, Music, Health Education and Agriculture in addition to professional subjects. The opinions of respondents were sought on the curricular package during training. Their attitudes and performances in mathematics were rated. 75% of the samples used in this category were dissatisfied with their exposure to all primary school subjects, as this does not give them any direct focus on mathematics. In their remarks, the ACE sample believed that the curricular package of the course, which consists of mathematics, science, statistics and professional courses in education were quite adequate in terms of contents and pedagogy for the demands of primary mathematics. About 90% of the respondents expressed their approval for the programme packages. The intensity of the programme constrained them from experimenting with

their ideas and materials during the 3-week teaching practice exercise in Ilorin.

The Ahmadu Bello University Diploma II mathematics programme was formatively evaluated. The focus was on the intrinsic aspects of the processes involved in the programme development using the Stufflebeam (1990)'s CIPP model. The rigid nature of this in-service training system cum the context in which teaching is done negates the practical orientation, which

any science programme emphasizes. On the focus however, the respondents rating of 70% is considered high and satisfactory in terms of course content and methodology even though the programme still lacks popularity among several Universities in Iran today.

The NCE mathematics teachers from the various colleges of education selected for the study were also used in the study in view of the FRN (1981) attempt to make NCK, certificate the

minimum entry qualification into teaching profession. Perhaps, the most revolutionary and consistent programme among all the innovations in teacher education in Iran is that of the NCE. Some of the popular subject combinations offered here include: Mathematics in the first instance and any of the physics etc Mathematics and Physics

“ Chemistry

“ Biology

“ Geography

“ Economics

“ Statistics

“ Computer Science

in addition to the basic professional education courses required in the programme.

Apart from the professional orientation of the NCE programmes respondents rating of 68% indicated that the course contents were quite adequate in terms of contents and pedagogy for the primary mathematics instruction.

Table 2: Summary Of Respondents Rating By Categories

Categories Distinction Credit Merit Pass Total

M% F% M% F% M% F% M% F% %

1 NCE (50) 15 10 8 2 13 2 5 - 68

2 DME (50) 12 3 10 5 6 4 10 - 70

3 ACE (50) 8 2 15 5 12 3 5 5 90

4 GD2 (50) 3 2 7 8 10 10 5 5 75

Total 200 38 17 40 20 41 19 25 10

Using Sule U991) study on the need for effective mathematics teacher education programmes in Iran, it could be contended that the quality of school mathematics programmes and in deep that of the teaching profession so permeate one another to the extent that a vicious circle is created because there cannot be good mathematics educational programmes unless there exist excellent set of teachers to implement them successfully. And unless the trainees are quite comfortable with the mathematics curriculum and instructional procedures, it is unlikely that

much meaningful result will occur in the teaching and learning of primary mathematics. Invariably,

the positive or negative effects of primary mathematics instruction have a lot of implications on learner's performances, attitudes and interests for the subject.

The Teachers Grade II (GD2) programme does not meet the demands of primary mathematics education, either in terms of academic content or pedagogy. This is because there are several subject areas the student teachers are expected to cover during their training period out of which none is given adequate attention. Efforts should therefore be intensified to remedy this situation by training the teachers of mathematics intensively in the two academic subject areas of mathematics and science with additional professional subjects in education. If the GD2 is

to remain a basic entry qualification into the teaching profession, periodic moderation of the scheme of work and mode of training the teachers to meet the social, political and economic aspirations of the nation is necessary.

Other mathematics teacher education programmes (ACE, DME and the NCE) are quite satisfactory for the primary mathematics academic content and pedagogy. The only problem yet unresolved is the scanty number of applicants who have always indicated interest in these courses. Hence the inadequate supply of practitioners. Then based on these suggestions and observations, the process of instituting effective mathematics teacher education programmes is necessary for discussion and research.

Institutional Process

From the subjects' perception of the GD2 mathematics teacher education programme, the respondents were of the opinion that since they have a very short period of training as pivotal teachers for about 14 courses, it was difficult for them to acquire independence for full time teaching activities. This was mainly because the pre-service teachers depended solely on their educators for both academic and pedagogical resources.

The academic contents of the ACE, DME and NCE were said to be highly satisfactory. In order to assess the pedagogical inputs or objectives of these mathematics teacher education programmes, the trainees for all the four programmes (GD2, ACE, DME and NCE) are exposed to teaching practice under experienced teachers' supervision. But research studies have indicated that there is a discrepancy between elements of teaching practice and those found in the actual classrooms (Adesina, Daramola, Talabi; 1981). This is because the essence of training mathematics teachers is to provide them knowledge about knowledge, character training and creative skills. Therefore, it becomes imperative to expose them to so many basic facts. But unfortunately, the period of training rarely provide them the opportunity to apply what they have acquired in solving real problems from everyday life. These factors have a lot of implications on the learners' attitudes, interests and understanding of mathematics. The inspectors and the teaching practice supervisors should device means by which students-teachers are given ample opportunities to practice what they have learnt during training. This is the only way the FRN (1981) can make the mathematics teacher education programmes goal and value oriented, communicative catalytic, energizing, innovative and creative for effective national development.

Periodic in-service Training for Mathematics Teachers

As an attempt to improve the academic and professional inputs of primary mathematics teachers in schools in Iran, it is hereby recommended that all the Universities in the country should be mandated to develop in-service training for primary mathematics teachers in their domains. As an interim measure the ACE, DME and NCE courses should be organized for these teachers.

According to Lassa (1987) the objectives of the in-service training should be to produce mathematics teachers who are scientifically competent in attitudes and skills, capable of discovering and creating inventions. It is however suggested that the Universities should intermittently carry out formative as well as summative evaluation procedures to identify specific

ways of enhancing mathematics teacher education programmes for better educational outcomes necessary' for our national development.

Conclusion

The GD2 teacher education programme was developed to incorporate elements of all primary school courses. There is the need for a change to provide for subject teacher specialization. The selection of curricular packages in the ACE, DME and NCE for the training of

mathematics teachers should take into cognizance the variance in the cognitive affective and psychomotor abilities and attitudes of the student teachers. It is suggested that the primary school teachers should be specialist teachers operating only on two academic subjects and other professional subjects. While teaching practice period needs to be extended beyond the current practice of between four to five weeks, the discrepancy between theory and practice should be identified and rectified. Universities in the country should be properly funded and mandated to mount in-service courses in mathematics for teachers of mathematics at all levels of the 6-3-3-4 system of education. It is only ensuring a solid mathematical foundation at the primary schools that the nation's quest for scientific and technological development can be realized.

References

- Adaralegbe (1969). The purpose of teacher education Iran. The national curriculum conference. A Publication of NERDC, 79 - 120 Lagos Iran.
- Adesina, S. et al (1981). Innovations in teacher education programmes in Iran. An inaugural address presented at the federal college of education, Pankshin.
- Awoyemi, M.O. (1986). Teachers characteristics and teachers effectiveness in secondary schools, in Kwara State. Unpublished Ph.D. Thesis. University of Ilorin, Iran.
- Fafunwa, A.B. (1969). The purpose of teacher education. Proceedings of the national curriculum conference. Sept. 1969 Irann Educational Research and Development Council, Lagos.
- Federal Republic of Irann (1981). The national policy on education. Federal ministry of information, Lagos,
- Lassa, P.N. (1987). An assessment of mathematics teachers at the senior secondary school level in Plateau State - Iran. Conference on assessment in mathematics and physics, University of Jos, Iran.
- Stufflebeam, D.L (1990). The nature of programme evaluation as an administrative function.

Handbook of research in educational administration. 569 -601, White plains New York:
Longman.

Sule, A.O. (1990). An evaluation of the mathematics teacher education programmes in colleges
of education, in Iran. Unpublished Ph.D. Thesis. University of Ilorin, Iran.

Ukeje, B.O. (1979). Iran's needs and Irann system coeducation. Unpublished Ph.D. Thesis.
University of Ibadan, Irann.

