

# **Training of Community, Primary and Secondary School Mathematics Teachers in Papua New Guinea through Distance Education mode**

*Marasinghe M Gunasekara*

University of Technology, Lae, Papua New Guinea

## **INTRODUCTION**

Papua New Guinea is a developing country with much less infrastructure and manpower. People came into contact with the outside world during the 2<sup>nd</sup> world war. Even though the country is blessed with much natural resources like copper, silver, gold, petroleum, gas and timber, they have no basic industries as such. The education is also very young. Education Department and the Universities still depend on expatriates in subjects like Science and Mathematics.

University of Papua New Guinea produces some Mathematics and Science graduates and Goroka Teachers College (now a university) is training some teachers. New Educational changes are taking place and the subject knowledge of Community, Primary and Secondary school teachers has to be upgraded to carry out the educational changes successfully. There is also a dearth of Science, Mathematics and Business studies teachers in schools.

At present in Papua New Guinea there are about 900,000 students and over 30,000 teachers in more than 6,000 institutions in the national education system. Out of these

About 23,000 are not trained.

There had been tremendous progress in increasing access to education since the educational reforms began in 1993. In 1992 the total enrolment was only about 500,000 students. In less than ten years there has been an increase in the number of school places by about 400,000. This is two to three times faster than the population growth since the reforms started. But the number of teachers trained during this period is utterly inadequate.

Despite the increase, providing access to education and training of teachers is still one of the greatest challenges in the reform process. Like other Asia – Pacific nations, the need to expand education opportunities is not fast enough to keep up with overall population growth, or to get education to many people who have never had it.

It is now unsure how many children in Papua New Guinea still cannot go to school. It is also a fact that across the nation the level of literacy in adults is low compared to the Pacific neighbours.

For all these reforms to be implemented successfully there should be more and more trained teachers in schools. The existing Teacher Training Colleges cannot cope up with the demand. (see table 1) Training of teachers in the distance education mode is the only viable solution considering the huge amount of money involved in training teachers in the normal mode.

Considering the above situation, the Department of Distance Learning, University of technology, Papua New Guinea has decided to offer a Diploma Course for the Mathematics teachers in schools to start with. Then follow it up with a degree course later.

**Enrolment in Teacher training colleges.**

Year:	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>
	1156	939	1749	1726	1432	2597

Table 1.

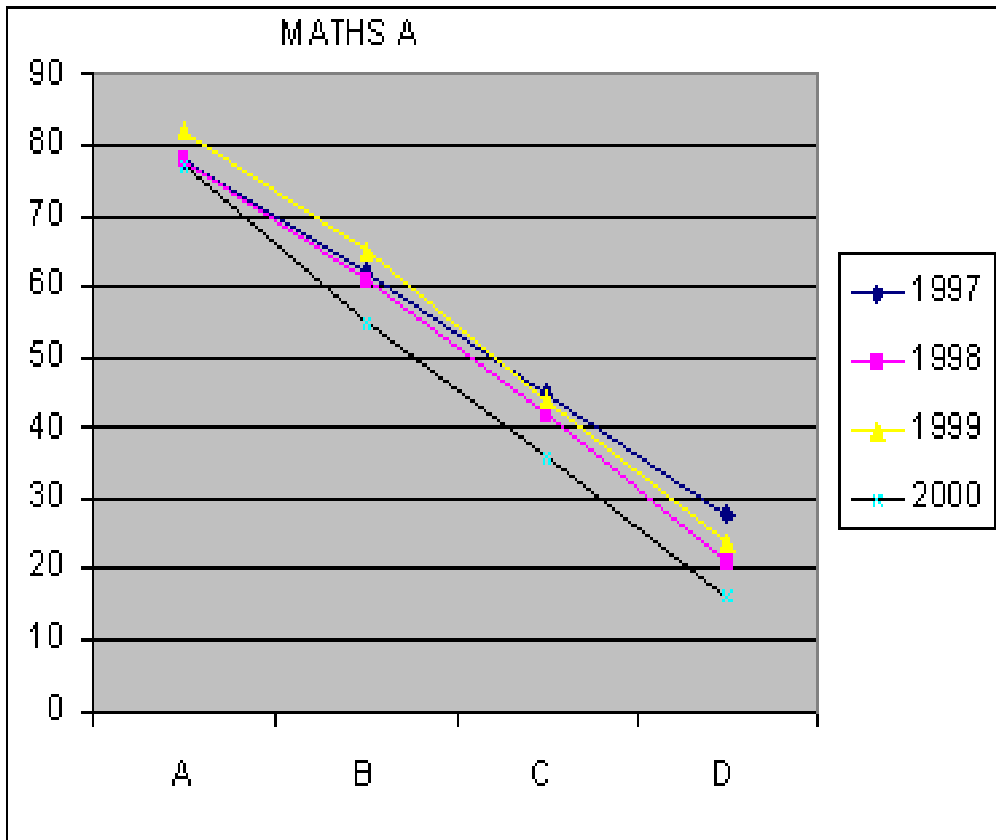
Cut- off marks for various grades in Grade 12 examination in Mathematics A and Mathematics B.

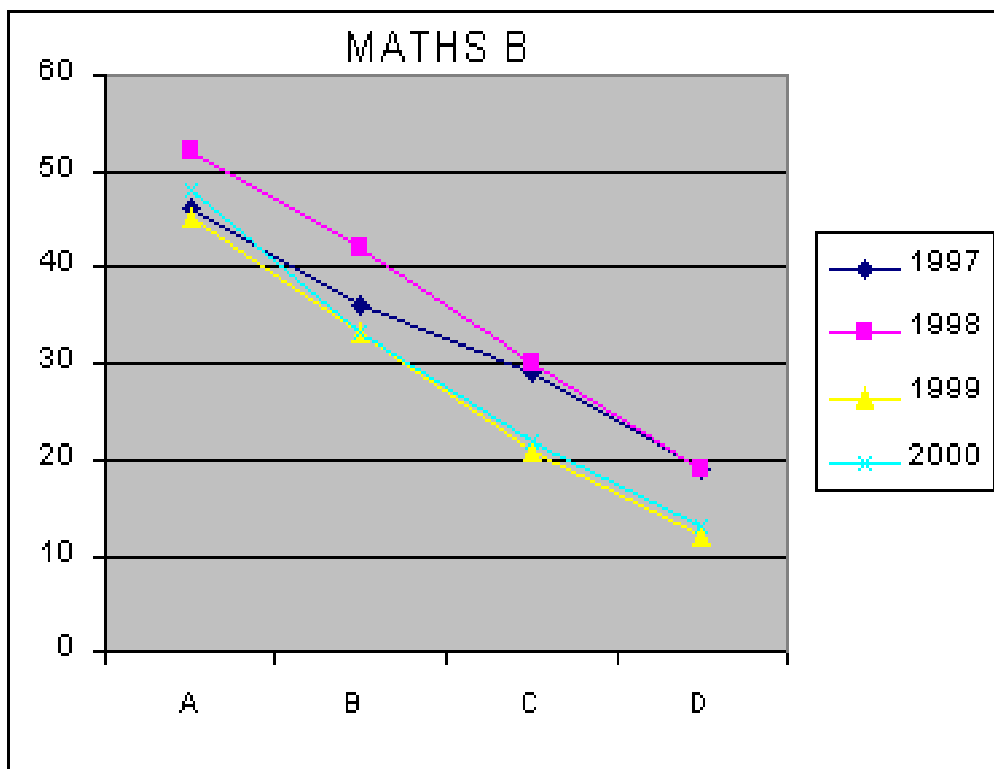
Year \ grade	A	B	C	D
<b>1997</b>	<b>78</b>	<b>62</b>	<b>45</b>	<b>28</b>
1998	78	61	42	21
1999	82	65	44	25
<b>2000</b>	<b>77</b>	<b>55</b>	<b>36</b>	<b>16</b>

**Table 2. Mathematics A**

Year\grade	A	B	C	D
1997	46	36	29	19
1998	52	42	30	19
1999	45	33	21	12
2000	48	33	22	13

**Table 3. Mat6hematics B**





Graphical representation of Table 2 and Table 3 show the cut off points for various grades for Mathematics A and Mathematics B for the years 1997 to 2000. It is clear from the graphs that the performance of students has gone down because of the poor quality of Mathematics teaching. This is due to the lack of properly trained teachers with a good subject knowledge in schools.

#### **Evaluation of the Course:**

The course is evaluated through a series of Assignments, Tests and a Final Examination for each unit.

#### **Award of Certificates:**

A diploma will be awarded on successful completion of the initial two years' course. In order to obtain the above certificate a candidate must fulfill the following criteria.

- (a). A candidate must complete all the assignments indicated in the modules and submit them within due dates.
- (b). A candidate must obtain at least "C" grade in each assignment.

- (c). A candidate must complete 12 modules successfully. (6 modules each year).
- (d). A candidate must attend 2 weeks residential school each year regularly until the course is completed.

**Face to face tutorials:**

Monthly regular lectures and tutorials are to be held according to a schedule for all courses in the study program.

**Material development.**

The course materials which are in print are designed by tutors who teach the internal courses in the University. The modules are self – instructional materials.

**Objectives:**

The objectives of this course for teachers are:

- (a). To enhance the subject knowledge of the teachers.
- (b). To develop a liking and commitment to student centered learning.
- (c). To catch up with the changes in the curriculum.

This program will have the following benefits:

- (a). Accessible training to teachers in rural areas.
- (b). Students may complete their course of studies without suffering the loss of salary and jobs.
- (c). Papua New Guinea ministry of education find it difficult to replace teachers mainly in the (bush) community schools to be sent for full time training.

- (d). Once the program is in full swing many more teachers could be trained without displacing them from their place of work and environment.
- (e). Since most of the teachers are having families, their family life will not be disrupted.

For this program to be successful students should have:

- (a). A willing ness to contact the instructors for assistance when necessary.
- (b). A more serious attitude towards the course.
- (c). Employment in a field whose carrier advancement (promotions) can be readily achieved through academic upgrading.
- (d). Timely feedback regarding course assignments, tests, examinations and projects (if any) should be given.
- (e). Learners will benefit significantly from their involvement in small learning groups. The group will have the feeling that if help is needed it is readily available most of the time.
- (f). More frequent contacts with the instructor will motivate them further.

For this course to be successful, the ministry of education too has to fulfill some obligations:

- (a). Help Department of Distance Learning, University of technology financially so that course material cost could be minimized.
- (b). Recognize the diplomas for professional purposes.
- (c). Promotions or giving a salary point on the teachers salary scale will greatly motivate the teachers to complete the course as soon as possible.

Nearly two – thirds of educational spending is going towards primary and secondary schooling as the size of the school going age population in Papua New Guinea has increased over the last few years and the money spent on

tertiary and other high level institutions have decreased. The government is not spending much money on teacher training so that the training of teachers in the distance mode is quite appropriate at this juncture in Papua New Guinea. As the new census indicates in the near future more and more money has to be allocated for primary and secondary education in Papua New Guinea.

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