

**Title of the Study** : **Impact Evaluation of 1997 Education Reforms in Teaching Science at the GCE Advanced Level**

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### **Objectives / Terms of Reference**

The study focused its attention on the following aspects:

- Perception of reforms by students, teachers, administrative officers, parents and the public on the,
  - a) Reduction of subjects from 4 to 3
    - \* biology in place of botany and zoology, and the biology curriculum
    - \* combined mathematics in place of pure and applied mathematics
  - b) Introduction of the Common General Paper
  - c) Introduction of projects at GCE O/L
  - d) School-based assessment (SBA)
  - e) Making 80% attendance compulsory
  - f) Making practical work compulsory
  - g) Introduction of z-score for university admission
  - h) Teaching science subjects in English medium
- Assistance given by the Provincial and Zonal Education officers in implementing the reforms (Monitoring panels)
- Assistance given by the Ministry of Education and the National Institute of Education (NIE)

### **Methodology**

Ten percent of 1AB schools from each educational district were selected for the study from the 1AB school list prepared by the Ministry of Education (56 schools.) In the districts where there were more than three 1AB schools in the sample a leading girls' school, boys' school and a mixed school were selected. In addition the selection of schools covered urban, semi-urban and rural sectors.

As research instruments, four types of questionnaires developed for:

- a) Students,
- b) Teachers,
- c) principals and education officers (zonal, provincial),
- d) parents,

based on the subsidiary research questions. Interview guides were developed to interview the above categories and, the university staff members who were involved in GCE A/L science curriculum development and examination work.

### **Conclusions**

#### **Students**

Of all the reforms students preferred the change of A/L subjects from four to three and SBA (more than 80%) than other changes (45-57%) and the z-score (20%) was the least preferred. This provides evidence to conclude that the students consider GCE A/L examination as an entrance examination to the university, and getting admission is the expectation. The reduction of subjects relieves them in studying for three subjects than four, and the SBA relieves them to a certain extent from the competitive public examination. From the reasons given, it was evident that many students do not have a

good understanding of the z-score. They were uncertain about the prospects in sitting the examination in English medium.

### **Teachers**

In contrary to students, least preference of teachers was the reduction of subjects from four to three (38%) and the most preferred was making 80% attendance compulsory. Considering their reasons too this could be explained that teachers are paying more attention towards the deep knowledge of the subject matter that students should possess and for which of course the attendance is necessary. It is sad that teachers could not comprehend the importance of z-score in the selection to the university. The ignorance of the concept behind the reforms failed many teachers to implement reforms successfully in the science classrooms. They have failed to provide students with sufficient guidance to do their projects and conducting practicals and recording SBA.

### **Administrative officers (Principals & Education officers)**

Although the administrative officers perceived all the education reforms introduced in 1997 favourably, for the introduction of z-score and instruction in English medium in 2000 they had some uncertainties. Their support and guidance in implementing reforms were poor, especially in monitoring 80% attendance, practicals and SBA where teachers need constructive feedback. The only explanation that could be given to their acceptance of reforms (sometimes 100%) and not supporting the teachers, is the lack of understanding of the concepts behind the reforms.

### **Parents**

The preferences of parents towards education reforms were higher than the other categories (60-85%) on the average. They rated 80% attendance, SBA and practicals as very good changes. Unawareness about the z-score prevented them in giving reasons for their preference. They preferred English medium instruction at a lower grade, but not at a competitive examination like GCE A/L. The responses of parents are tied with the future aspirations of their children. Many liked the common general paper just because it broadens students' general knowledge to think about the world.

Although all the categories of respondents perceived education reforms as favourable changes, they were not happy with the way reforms were implemented. On the whole for the changes introduced in 2000 all the categories had lower preferences compared to the changes introduced in 1997. This provides evidence that it takes some time to adjust and adapt for changes.

### **Findings and Recommendations**

For the successful implementation of 1997 education reforms the following are recommended:

- Prior to the implementation of reforms it is necessary to make aware of the objectives of the reforms and how should it be implemented to all parties involved in the implementation of reforms.
- Continuous programmes in professional development need to be launched immediately throughout the country for the capacity building of teachers to face the challenges in the teaching learning process.

- Depths and limits of newly introduced topics should be clearly stated to avoid teaching content out of the syllabus.
- New teaching methodologies that are being used in other countries with effective education programmes need to be considered in planning and assessing curriculum.
- Well planned programmes conducted by capable and qualified resource persons including educational technologies will be able to help teachers in making the shift.
- The zonal monitoring panel needs to check the class size, records of attendance, practical work and SBA either in their school visits or by requesting school records.
- Measures should be taken to encourage 80% attendance by having attractive learning sessions conducted by teachers to retain students in the classrooms and to discourage private tuition.
- The teacher should have the potential and confidence to overcome his/her own problems. It is necessary that teachers need constructive feedback from the knowledgeable persons.
- It is necessary that teachers should design practical work to develop science process skills and thinking skills without overloading tasks with manipulative skills.
- Most of the laboratory assistants have poor knowledge on the practical work. Therefore, it is necessary to develop the required skills in them through training programmes.
- A set of criteria or standards, needs to be developed to assess project work, practical work and SBA.
- All the teachers teaching in the A/L classes should be given the responsibility of supervising students' projects.
- Zonal monitoring panels were appointed along with the education reforms. They have to play a major role in monitoring the implementation of reforms.
- There should be a networking of zonal monitoring panels to monitor the island-wide implementation of reforms. A division in the central Ministry at Isurupaya needs to monitor the monitoring of zonal panels.
- An awareness building programme on the benefits of z-score should be launched. UGC should take necessary actions to make it transparent that unfair decisions for rural students are not made in the selection procedure.
- Teaching English as a subject by qualified, trained teachers will be more effective to improve the students' English knowledge than introducing English as a medium of instruction in the school system.