

On Fifty Years of University and Pre-University Teaching of Statistics in Pakistan

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1. INTRODUCTION

Kuan-tzu, 551-497 B. C. says that “If you plan for a year, plant a seed. If for 10 years, plant a tree. If for 100 years, teach the people”.

It is also said that “When you sow a seed, you will reap a single harvest. When you teach the people, you will reap a hundred harvest”. In Islamic teachings, everyone is urged to learn even if one has to travel to China. In view of these sayings, Pakistan pays full attention to education, though she does not have much resources to implement her schemes.

In 1947, at the time of Pakistan independence, First All Pakistan Education Conference was held at Karachi which recommended that primary education would be free and compulsory for all children till Class-VIII.

In 1959, National Education Commission was set up and again recommended that the primary education would be free and compulsory. Many new schools were opened and teachers appointed. Female teachers were encouraged. The primary education was organized by district councils instead of local bodies. For the purpose, union councils that were responsible for finances and management, were established. In 1970, new education policy was framed and again elementary education for children of age 11 years and less were made universal. The universal and free education to be achieved by 1984. About 3800 school rooms were constructed and about 2,25,000 elementary teachers were appointed. During 1974, all schools were nationalized but when monitored the progress of school education, it was found that less than 25% of target could be achieved. With the change of Government in 1977, privatization of schools was proposed. About 5000 mosque schools and 13000 new primary schools were opened.

In 1990, two education policies were announced viz. Education Policy 1990 and Education Policy for the period 1998-2010. The 1990 Education Policy emphasized school and pre-university education. The Policy recommended:

- i) Teachers' Training Program,
- ii) Vocational Education,
- iii) Pre-University and university graduate and post-graduate program,
- iv) Improvement of examination system.
- v) Introduction of computer education at schools levels, and
- vi) Encouraging private sector to open school and colleges.

The major objectives in 1998-2010 Education Policy besides others, are to:

- i) Improve primary education.
- ii) Improve teachers' training program.
- iii) Strengthen monitoring system at school and pre-university levels.
- iv) Update syllabii to meet the needs of the 21st century.

In view of the Government education policies we describe the development of statistics and statistical education in the last 53 years in Pakistan.

2. DEVELOPMENT OF STATISTICAL INSTITUTIONS

In Pakistan, the minimum age of admission of children to class 1 is 5 years. Pre-school or Montessori classes are optional. It takes 10 years to qualify secondary school and takes 2 years to pass higher secondary school or Intermediate schooling. After 12 years of higher secondary education, students spend 2 years for a Bachelor and 2 years for a Master degree in any discipline of Science or Arts. It takes minimum of 16 years to earn a Master degree and as such the minimum age to qualify the Master's degree program is 21 years.

At the time of independence, the subject of statistics was taught as a paper to MA/M.Sc. Mathematics, Economics and Commerce students at Dhaka and Punjab Universities. In 1949, Department of Statistics at Dhaka University, in 1950 at the Punjab University, Lahore, in 1958 at Peshawar University and in 1963 Department of Statistics at University of Karachi were established. The department of statistics at the Punjab University was converted into Institute of Statistics in 1954.

At Bahawalpur, the first under-graduate teaching of Statistics was started at the Government College. Since then 56 universities came into existence and almost in every university, statistics was taught both at graduate and under-graduate levels. By 2001, statistics is being taught at under-graduate level in more than 600 colleges. Of 56 universities, 26 universities have graduate statistics programs.

Master of Philosophy (M.Phil.) in Statistics classes started at Karachi University in 1969 and Doctorate degree programs were instituted in Bahauddin Zakariya University at Multan and Punjab University at Lahore in 1980. Each of these universities could produce only one student with doctorate (Ph.D.) degree. In March, 2000, the newly established University of Lahore at Lahore started M.Phil. and Ph.D. programs and has about 20 students admitted to M.Phil. and Ph.D. programs. Government of Pakistan has recently announced that all universities must initiate post-graduate and post-doctorate programs.

3. TEACHING AT SCHOOL AND PRE-UNIVERSITY LEVELS

As stated earlier, the secondary school education is of 10 years. Later 2 years of education beyond secondary schools is named as higher secondary education. Two years of higher secondary schooling is a pre-university education. Previously, by 1980, all post-secondary school teaching was college teaching.

In Pakistan, schools and colleges are not the degree awarding institutions. Pre-university examinations are conducted by Boards of Secondary & Intermediate Education and graduate and post-graduate degrees are awarded by universities. There are eight Boards of Secondary & Intermediate Education and 56 degree awarding universities.

Statistics is being taught as a part of mathematics curricula from class-VII to class X i.e. from the age of 12 till age 15. It is a 4 years of teaching of statistics at school level without mentioning to students that statistics is being taught to them. At higher secondary level of schooling, statistics is a full subject open to students of Science and Arts. At least 20% of total students of all branches of Sciences, Arts, Engineering, Agriculture and Medical sciences take statistics as a full subject. Each science subject carries approximately 480 hours. Statistics as a part of Mathematics carries 60 hours whereas statistics as a full subject has 480 hours in two years.

Islamic Educational, Scientific & Cultural Organization (ISESCO), Rabat, Morocco an organ of organization of Islamic Countries (OIC) recommended the minimum number of hours from class-VII to class-XII in Mathematics for all member states of OIC. The class wise breakdown is given below:

Topics	No. of years hours per Grade Level					
	VII	VIII	IX	X	XI	XII
Mathematics	160	160	170	170	180	180
Statistics	10	10	20	20	30	30
Computer Science	10	10	20	20	30	30
Total	180	180	210	210	240	240

The total number of school days in Pakistan and other Islamic Countries ranges from 150 days to 216 days and the average length of school days ranges 5 to 6.5 hours per day. The course contents are compatible with the age of students. The above timeframe was work recommended by ISESCO for all Islamic Countries. Only a few Islamic Countries responded positively. ISESCO promised to train the teachers and trainers of most of the relatively poor countries. Teaching Manuals have also been prepared and are in print.

Detailed syllabii for class-VII to XII and for four years B.Sc. degree program have been prepared. The main objectives for Class-VII and Class-X students are:

- i) familiarity with raw data, systematic collection and organization of data,
- ii) distinguish between counting and measurements,
- iii) reducing data in the form of averages and understanding the meaning of averages,
- iv) computing and differentiating among percentages, ratios, and proportions, and
- v) understanding and preparing simple charts and histograms

and for Class-XI-XII, the objectives are:-

- i) familiarity with basic statistical methods,
- ii) estimation and testing procedures that include point and interval estimation, confidence limits and testing of mean in one sample cases,
- iii) sample survey and design of experiment techniques and field work.
- iv) statistical models and probability functions.
- v) applications to various fields of knowledge.

Unfortunately the teaching of statistics at school levels could not be effectively introduced as sufficient number of qualified statistics teachers are not available and mathematics teachers are made responsible for the teaching of statistics. The interest of students is lost as no practical aspect of the statistical technology is introduced. By 1947, Pakistan had only two persons holding Ph.D. degree, by 1969 only 3, by 1995 the number increased to 40 and by 2001, about 72 persons were holding Ph.D. degree in Pakistan but unfortunately no person with Ph.D. works at school level or at higher secondary level. Subject specialists in statistics are fresh M.Sc. in statistics. Most of the Ph.Ds' are absorbed by universities. The number of statistics teachers holding M.Sc. degrees is not more than 1000 in Pakistan.

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