

TEACHING STATISTICS IN SCHOOLS IN SAUDI ARABIA

A.H. Al-Harbey and G.M. El-Sayyad
King Abdulaziz University, Jeddah, Saudi Arabia

1. The Educational System in Saudi Arabia

Before the unification of the Kingdom of Saudi Arabia in 1924, Public education was almost non-existent. The educational institutions at that time were Private and established by individuals and organizations. The curricula of these Private schools was reading and writing Arabic, Literature, and Islamic Jurisdiction. There was no compulsory attendance but the students were highly self-motivated. After the unification of the Kingdom, a Department of Education was established under the Ministry of the Interior to supervise these Private schools and to open other schools in different cities of the country. These schools become Elementary schools. Secondary schools were established in the 1940s to prepare students for Higher Education in other Arab countries. In 1953, the Department of Education was placed under the Ministry of Education and the modern school system began.

The first stage in the modern school system is the elementary school, which is the basis for all stages and types of education. It is a six-year stage, accepting children at the age of six. The second stage is the Intermediate school which is a three-year stage, accepting students who complete the Elementary stage successfully. The third stage is the Secondary school which is also a three year stage, accepting students who complete the Intermediate stage successfully. In the first year of Secondary schools, all students take general subjects while in the second and third year students have to go to either a Science or an arts section. Besides the general secondary school, there are several specialized secondary schools such as Commercial Schools, Agricultural Institutes, Industrial Institutes, Health Institutes, Religious Institutes and Comprehensive Secondary Schools.

Pupils are promoted from one grade to the next on passing the tests in the subjects which are taught during that year. At the end of the last grade in each stage, a more formal public-examination is administered to determine those who should go to the next stage.

2. Statistics in Saudi Arabian Schools

Until quite recently the general school syllabi did not have Statistics as a subject. However, the mathematical syllabi of Elementary and Intermediate schools contained the following topics in Statistics:

- Constructing and reading pictures
- Constructing tables
- Representing tables by columns, bar and line graphs.

2.1 Secondary School Syllabi

Statistics in Secondary school forms a part of the Mathematics syllabi. In fact, statistics (one-tenth of the Mathematics syllabi) is taught to the students in the first year and Probability (also one-tenth of the Mathematics syllabi) is introduced in the second year for the Scientific section only. It is possible for a student to pass the examination in Mathematics creditably without answering any questions in Statistics. The following are the details of Statistical and Probability material.

(A) Statistics

- Introduction to Mathematical statistics
- Collection and tabulation of statistical data
- Frequency distributions and graphs
- Cumulative Frequency distributions
- Measures of Central tendency: Mean, Median, Mode.

(B) Probability

- Introduction to Probability
- Random experiment - Sample space - events
- Operations on Random events
- Mathematical definition of Probability
- Conditional Probability and independent events.

2.1.1 The Objectives of the Syllabi. The student of the Secondary school, after studying the Statistical and Probability material, should be able to

- (a) Know Statistical terminology and define them by giving their attributes, properties or relations.
- (b) Know the basic concept, principles and ideas (i.g. the axioms of Probability).
- (c) Translate Mathematical verbal material into symbolic statements and vice versa.
- (d) Apply Statistical and Probability material to practical situations of a routine type.
- (e) Apply Statistical Procedures and the laws probability to unfamiliar problems.

3. Teacher Training

Teachers who will go on to teach Mathematics in Elementary schools are trained in the Community Colleges (2 years) under the Supervision of the Ministry of Education. Teachers in Intermediate schools are trained in either Centers of Mathematics and Sciences (3 years) also under the Supervision of the Ministry of Education, or in Colleges of Education at the Universities. Teachers in Secondary schools who have had some experience, are mainly trained in Colleges of Education at the Universities. Those who have graduated from other Colleges at the Universities and wish to teach

at schools, must attend a special program in the methods of teaching and related topics which is usually organized by the Ministry of Education in cooperation with the Universities. The teachers who have been trained in the Universities have a better Mathematical training. However, they have a little training in Statistics.

4. Conclusion and Recommendations

The teaching of Statistics in schools in Saudi Arabia faces some problems:

(i) Lack of Suitable Teachers

It is very difficult in developing countries to find teachers with a major in Statistics. In Saudi Arabia, teachers of Mathematics teach the Statistical part of the Mathematics syllabi in Secondary schools and most of them are facing problems in teaching Statistics. The reason is that some of these teachers did not offer any Statistical courses during their training at Colleges or Universities. However, some Mathematics Departments require their students to take almost one or two courses in Statistics which is not enough to prepare a qualified teacher in Statistics. It is the duty of the Colleges, Universities and the Ministry of Education to prepare a suitable program for teachers who are responsible for teaching of Statistics. Specially there is a tendency in the Ministry of Education to increase Statistical material in Secondary schools.

(ii) Lack of Suitable Curriculum

As we have seen, Statistics and Probability forms almost one-tenth of the Mathematics syllabi of the first and the second years of the Secondary School respectively. It is recommended that

(a) either the existing syllabi of Mathematics should be adjusted to include more important Statistical material,

or

(b) the Ministry of Education (in co-operation with Universities and Colleges) should draft a new suitable course in Statistics and Probability to meet the objectives of Teaching Statistics in Secondary School, since Statistics is essential for Basic Sciences, Engineering, Medicine, Business and Management etc.

Besides above, the student can pass the Mathematical examinations in Secondary Schools without answering any questions on Statistics and Probability. This undermines the importance of Statistics for the students and the teachers. Therefore, it is the responsibility of the Ministry of Education to arrange the examination in Mathematics such that a student must answer some questions on Statistics and Probability.

References

- Al-Harbey, A.H. (1982). Feasibility of college student placement at King Abdulaziz University by discriminant function and multiple regression analysis. Doctoral dissertation: University of Northern Colorado.
- Ministry of Education. (1981-82). Educational statistics in the Kingdom of Saudi Arabia. Riyadh, Saudi Arabia: Ministry of Education, Center for Statistical Data for Educational Documentation.
- Ministry of Education. (1983). Modern mathematics for the first year of secondary school. Riyadh, Saudi Arabia: Ministry of Education, General Administration for Researchs and Curriculum.
- Ministry of Education. (1983). Modern mathematics for the second year of secondary school. Riyadh, Saudi Arabia: Ministry of Education, General Administration for Researchs and Curriculum.