

## **ISI IN THE POSTWAR PERIOD – PLANTING THE SEEDS OF STATISTICAL EDUCATION**

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*This paper will examine the foresight, commitment and academic and administrative expertise manifested by various individuals and institutions that combined to create an atmosphere and infrastructures in which statistical education could develop as a discipline in its own right. Particular attention will be focused on the development of statistical education activities in the International Statistical Institute's post-war period, with particular reference to ISEC Calcutta and the former ISEC in Beirut, and ISI Statistical Education Committee, forerunner to the present International Association for Statistical Education.*

Looking back 50 years in time, it is apparent that the International Association for Statistical Education's (IASE) establishment, from its initial conception to its relatively rapid realisation, and its gradual fortification as the professional association responsible for the development and improvement of statistical education on an international basis, has relied on the foresight, ongoing commitments and academic and administrative expertise of several important individuals and institutions. A historical overview of the development of statistical education initiatives within the International Statistical Institute (ISI) is warranted in order to appreciate the elements that combined to effect the successful establishment of the IASE, and to acknowledge the contributions of those who played a part in its foundation and growth.

Although the focus on statistical education is presently of fundamental importance to the ISI, this was not always so. Previous to the 1940's the ISI statutes contained only a token reference to this subject. Following the First World War, two reports regarding the teaching of statistics in universities and high schools were submitted to the 16th (1925) and 17th (1927) sessions (ISI Bulletin Volumes 22 & 23) but no recommendations were brought forth on the subject (see Nixon, 1960).

The Second World War had a disruptive influence on the functioning of the International Statistical Institute, which was, together with many international institutions in existence at the time, more or less suspended during the conflict. During the war, the Institute was unable to organise Sessions in the period following the Prague Session (1938), and the Institute's scientific activity diminished considerably. The ISI found itself in a position such that it was too weak to compete with other organisations, most notably the League of Nations and its subsidiaries, in those activities (most notably, official statistics), which it had previously been known to initiate and lead. The ISI was faced with two options: it would have to either reinvent itself or face eventual extinction.

In the aftermath of the Second World War, in the lead up to the 1947 Session in Washington (the first to follow Prague), steps were taken to revive and adapt the Institute in order to adjust to the radically altered post-war situation. Evidence of this can be seen in the effort taken to develop a new set of statutes, in which several previously prominent activities were dropped and new priorities introduced and emphasised. This reassessment of the Institute's fundamental priorities is evident in the draft revised statutes which were distributed in 1947 to all ISI members, discussed in detail during the Washington ISI Session, and then put into effect beginning with the Bern Session in 1949. The Institute's aims, as stated in article 1 of the new Statutes, were as follows:

“The Institute is an autonomous Society having as its objective the development and improvement of statistical methods, and their application throughout the world, all this in the widest sense of the words. The Institute shall try to accomplish this objective in particular...

- a. by encouraging the international association of statisticians, the exchange among them of professional knowledge, and the growth among them of a collective interest in the advancement of such knowledge;

- b. by aiding in the establishment of such relations among statistical societies and other official and unofficial organisations having statistical interests as will further the international integration of statistics;
- c. by establishing and maintaining professorships, lectureships, and fellowships for advanced studies in statistics;
- d. by promoting the training of competent statisticians;
- e. by studying statistical theories, appraising statistical methods and practices, encouraging statistical research and furthering the use of statistical methods in diverse subject-matter fields wherever useful;
- f. by promoting the use in all countries of the most appropriate statistical methods;
- g. by furthering international comparability of statistical data;
- h. by fostering public appreciation of sound statistical practice and the usefulness of statistical methods” (see *Revue De L’Institut International De Statistique*, 1947, p. 160).

Conceding that the previous focus on the collection and publishing of international statistical data and the exertion of influence of governmental statistical practices was no longer a relevant pursuit for the Institute (as these had been taken over by the UN Statistical Commission in 1947), these activities were dropped. The encouragement of statistical education and the training of statisticians was considered to be one of the foremost, if not the foremost new activity of the organisation. While the previous ISI statutes contained only a passing reference to statistical education, they were firmly entrenched in this new version.

One of the foremost catalysts in the initiative to stimulate the introduction of statistical education activities in the life of ISI was Stuart A. Rice (USA), President of ISI in the 1947-1953 period and Chairman of the ISI Education Committee from 1948-1954. In his memorandum justifying the need to revise the statutes, he stated:

“The Institute can no longer regard itself as a semi-official organisation, collecting international statistics for governmental use, drafting conventions and the like. These are now functions of official international agencies...The Institute cannot live without a mission, an action programme...The statement of objects in article 1 is an action programme. It represents a new *raison d’être*” (see Rice, 1947, mimeographed document).

Rice took advantage of his membership in the UN Statistical Commission, and expediently prepared to introduce his “action programme” in the form of a paper entitled *An International Programme for Education in Statistics*. This formed the basis of his April 1948 address to the UN Statistical Commission, in which he submitted a memorandum that was adopted as a draft resolution, and eventually ratified during the seventh session of the UN Economic and Social Council. This initiative could not have been more timely, as the Statistical Commission was then considering the entire subject of the development and improvement of statistical systems, in particular in “those countries, which do not now possess the present or potential resources of trained personnel”. In his paper, Rice states:

“...the task of creating a World Statistical System should be in mind. It includes several contributory correlative objectives...Positive efforts must be made to educate and train a sufficient number of competent statistical personnel to operate the system. This is especially important in countries that have not been steeped in Euro-American scientific and cultural traditions” (see *Revue De L’Institut International De Statistique*, 1947, pp. 145-146).

Rice goes on to justify the need to address various new challenges for the international statistical community, and then fixes his attention on the need to develop an international programme for statistical education. He alludes to a specific circumstance that he experienced during an ISI conference as justification for the need to introduce a comprehensive education programme:

“There was noticeable a pervasive sense of disappointment that the Conferences could not be more directly educational in character; that they could not more fully satisfy the needs of many participants for statistical enlightenment. This was illustrated by a delegate from one of the smaller nations who complained that the papers and discussions did not provide ready-made solutions to his nation’s statistical problems. The naiveté of this protest was eloquent of the need for an organised international programme of statistical education. If such a programme existed this delegate and his colleagues might feel a need but which they feel

lacking in capacity to create” (see *Revue De L’Institut International De Statistique*, 1947, p. 147).

In his address to the Statistical Commission, Rice urges the United Nations, and its specialised agencies (FAO, UNESCO) to support this enterprise. He notes that a dozen suitable locations could be identified for the establishment of an education centre;

“purely for purposes of illustration we mention the Indian Statistical Institute at Calcutta, India...” (see *Revue De L’Institut International De Statistique*, 1947, p. 148).

As we now know, Rice’s reference to the ISEC facility in Calcutta veiled intentions that were much more concrete than this illustrative reference would lead one to believe.

As a result of the discussions that ensued during that Statistical Commission meeting, the UN Economic and Social Council adopted the following resolution;

“...Recognising that a shortage of adequately educated and trained statisticians is impeding the development of statistics in many countries of the world and is adversely affecting the ability of many national governments to supply information... and believing that an international programme for education and training in statistics should be formulated and implemented as soon as possible, recommends that the Secretary-General, in collaboration with UNESCO, other interested specialized agencies, the International Statistical Institute and other appropriate international organisations, arrange for (a) a survey of the needs for education and training in statistics and the formulation of an international programme to meet these needs; (b) a report on the means by which such a programme may be put into effect...” (see *Revue De L’Institut International De Statistique*, 1947, p. 149).

Later in the same year, UNESCO provided an amount of \$5,000 to the ISI, followed by annual subventions to support the statistical education programme. The purpose of the grant was to enable the Institute to formulate definite projects, and its contract required reports thereon to UNESCO before the end of 1949. The ISI Bureau rapidly appointed a seven member Committee on Education to guide further developments. This Committee worked quickly to develop a comprehensive 32 page report, for the most part prepared by Rice, entitled *Furtherance of Statistical Education* (see *Revue De L’Institut International De Statistique*, 1949, pp. 1-34), in which it is stated:

“The Statistical Commission recognised that there is a shortage of adequately educated and trained statisticians in many countries, and the Secretariat has had this opinion confirmed by expert testimony...The Institute accepts this finding as a basis for immediate educational efforts” (see *Revue De L’Institut International De Statistique*, 1949, p. 3).

It is worthwhile noting that the report pays special attention to delineate the differences between statistical education and statistical training, the former regarded as “the preparation of qualified candidates for university and college degrees in the fundamentals of statistical science”, while training is viewed as the “instruction in statistical skills and techniques for specific and more or less immediate applications, imparted to those already possessing some knowledge of the fundamentals of statistical science”. The two focuses are of course related, and often in practice are merged. It is noted that in the promotion of improved statistics in statistically underdeveloped countries, education and training will virtually be indistinguishable.

The Centre was to provide instruction for three types of students;

- i) actual or prospective teachers of statistics;
- ii) persons already engaged in statistical work in governmental or non-governmental agencies or persons proposed to be so employed after completing their training;
- iii) students of promise who may deserve to receive encouragement and support by engaging in more advanced studies.

Initially, two six-month courses per year were organised, which in 1954 was extended to an academic year of nine months with a frequency of one term per year.

The ISEC facility was considered to be an important experiment, and as such, it was important that it be given every possible chance of surviving. As Stuart Rice stated in his farewell dinner speech during the Washington ISI Session;

“the centre at Calcutta is the most important activity upon which the Institute has yet embarked, not only with respect to the advancement of international statistics, but also from the standpoint of the Institute’s well being”(Mimeographed document, ISI Archives).

Intended to run for an unspecified number of years, the actual duration was left to the realities of financing and the demand for this particular type of instruction. For this reason, it is not unusual that the majority of students came from backgrounds described in “ii” indicated above. Although the initial response was slightly less than expected, continued efforts to promote the Centre yielded an increasing number of applications, such that in 1951 there were more applicants (fifty-five) than could possibly be accommodated (thirty-seven were actually accepted). Participation levels have continued to remain high, demonstrating the centre’s stature as a quality educational institution.

It should be acknowledged that the success of the Centre is in no small part due to the involvement of Prof. P.C. Mahalanobis for his efforts to support ISEC in its infancy. He was instrumental in the establishment of the Centre, and was frequently able to utilise his considerable intellect, tact and personality to secure help from both government and non-government sources, thus averting financial crises at various stages. Also, he was able to provide financial support to students by obtaining permission from the Indian Government to make available Colombo Plan fellowships. Statistical Advisor to the Indian Cabinet, Director of the Indian Statistical Institute, Professor of Presidency College, Calcutta, Fellow of the Royal Statistical Society, Chairman of the UN Subcommission on Statistical Sampling, Recipient of the Weldon Memorial Medal, etc., Prof. Mahalanobis was the ideal person to provide the fledgling organisation with academic credibility, management and fundraising skills and the necessary national and international contacts that it desperately needed in order to survive.

Encouraged by the apparent success of the Calcutta centre, while acknowledging that the Calcutta centre failed to attract students from the Middle East, it was decided to establish a second centre in Beirut, Lebanon. The Beirut centre was opened in February 1953 with 40 students coming from 8 countries.

In addition to the initiatives to establish statistical education training centres, the ISI also began to organise conferences and seminars of specific interest to statistics educators. The first of these Seminars took place in Bern in 1949. This conference was the first in a long tradition of statistical education conferences that eventually evolved into the present ICOTS conference series. These events are in keeping with ISI’s general objective to organise international meetings that serve as professional forums for the dissemination of new ideas on statistical theory and methodology.

While continuing to support the ongoing activities of the international statistical education centres, the ISI Education Committee, chaired by P.C. Mahalanobis from 1954-1960 also focussed its attention on the development of various teaching aids and materials. The most notable of these projects were:

- ISI Dictionary of Statistical Terms; As ISI had set itself the goal of further emphasising its strong commitment to the improvement of statistics and statistical sciences in developing countries, the need for an affordable dictionary became more evident. Prof. M.G. Kendall from the London School of Economics undertook to serve as editor-in-chief of the project. The dictionary was first produced in the English language, with about 1,600 terms, which was eventually augmented with glossaries in French, German, Italian and Spanish. A follow-up to the glossary was also created, specifically focussing on official statistical terms, with more than 1,100 terms in English, French and Russian. These dictionaries and glossaries are the forerunners of the existing ISI Dictionary of Statistical Terms (the sixth edition soon to be published as *the Oxford Dictionary of Statistical Terms*) and the *ISI Glossary of Statistical Terms* (the present version may be viewed via <http://www.europa.eu.int/en/comm/eurostat/research/isi/>), which now includes a description of 3,000 statistical terms in a total of nineteen languages, as well as short descriptive texts, including formulae. In response to a request received from the Union of Japanese Scientists and Engineers, the Education Committee supported a proposal to produce a Japanese version of *Dictionary of Statistical Terms*. ISI Vice President Mr. Y. Morita assumed the Chairmanship of the Editorial Committee.
- Bibliographies: Several bibliographies were compiled, beginning with *the Bibliography of Basic Texts and Monographs on Statistical Methods*, prepared by Dr. W.R. Buckland under the supervision of Prof. M.G. Kendall, and published in 1951. This was followed by

bibliographies in various other languages (French, German, Italian) as well as topic specific compilations focussing on index numbers, time series and stochastic processes, decision functions, linear programming and theory of games.

- International Journal of Abstracts - *Statistical Theory and Method Abstracts*: In 1957 the ISI Statistical Education Committee approved a proposal to develop a new journal which would provide an overview of those papers in the field of statistical theory and methods which were published after October 1958. The first edition of *STMA* appeared in 1959, under the General Editorship of Dr. W. R. Buckland and Managing Editor Prof. R.K. Anderson, with the aid of four regional editors. Produced in the UK by Oliver & Boyd (Edinburgh), *STMA* enjoyed a start-up subsidy from the U.S. National Science Foundation and was well received by the statistical community. A pale image of the comprehensive reference resource that we have since come to know, the first annual volume contained 751 abstracts, colour-coded according to a twelve-section classification system. This publication has evolved to its present CD ROM format, with more than 6,000 new abstracts published annually, and ten years of back issues.

In retrospect, the ISI Education Committee should take pride in the fact that many of the aforementioned programmes, conference series, reference works, teaching aids and training institutions are still in existence today, albeit in a considerably altered format, with the exception of the training facility in Beirut. Of course, the success of these projects was dependent upon not only the professional expertise provided by the various chairs, editors and authors, but also on the availability of sufficient funding, as provided by UNESCO, the Ford Foundation, the Government of India (indirectly through the Colombo plan as well as direct subventions), the Lebanese Government, as well as the funding provided by the ISI itself.

In the 1960's, the Chairmanship of the ISI Education Committee passed from P.C. Mahalanobis to H.O.A. Wold (1960-1963), then to G.M. Cox (1963-1969) and finally to J. Durban (1969-1973). In the first half of this decade, work continued on many fronts to respond to the international statistical community's needs for statistical education.

Responding to a plea from representatives from the University College of Salisbury (which was attached to London University) the ISI contributed funds to a programme, which supported the appointment of a professor of statistics. At the same time, a request was received from the Government Statistician of Uganda, to establish various forms of co-operation with faculties of economics, mathematics and agriculture at Makerere College (which was part of the University of East Africa).

The ISI Education Committee was specifically requested to develop a programme of teaching statistics at an advanced level. A teaching manual was also prepared for economically less developed countries, with particular reference to Africa. The manual contained practical information and guidance for the organisation of training schools, curricula, etc., at the intermediate level. The ISI also helped in the recruitment of qualified teachers in developing countries, and was successful in obtaining appointments for positions in Egypt and Ghana. A host of small scale, but not unimportant projects were launched in this period including:

- The collection of reprints of statistical papers on individual topics in statistics. A collection of 10-15 essential papers in appropriate fields was determined by outstanding experts in various fields;
- An inventory of audio visual aids used in the teaching of statistics was compiled;
- A survey of international training courses in statistics and a collection of syllabuses used in those courses was prepared.

In the mid 1960's, the ISI Education Committee recognised the need to modify its focus. As stated in Dr. S. Khamis' submission to the Education Committee:

"The changing conditions in the Near and Far East requires now a shift in the policy of ISI in relation to the educational requirements of these regions towards higher education and research in statistics. This shift in policy requires the immediate initiation of a survey of the best administrative procedures for promoting this higher level under the existing conditions in each area (see Khamis, 1965).

In response to these concerns, the ISI Permanent Office staff member Mr. G. Goudswaard initiated a comprehensive re-appraisal of the ISI Statistical Education Programme. As a result of this re-appraisal, the Education Committee prepared the following declaration:

“The Education Committee proposes that steps be taken by the bureau to review the range and character of the work of the Institute on statistical education and to formulate a comprehensive programme. It recognises that the programme may need to be developed separately for different regions of the world. The Education Committee recommends that ISI, with the co-operation and support of the interested international and other agencies, the universities and foundations, should study and propose the measures to be taken for establishing and developing centres for higher education and research in statistics” (see ISI Education Committee Minutes, 1965).

In the ensuing years, the IASE education programme has altered its directions in step with the educational, political and economic climate of the times. Although a comprehensive description of these changes is beyond the scope of this paper, I would refer readers to the broad historical and critical overview entitled *The Coming of Age in Statistical Education* (see Vere-Jones, *International Statistical Review*, 1995, pp. 3-23).

In conclusion, since its early developmental years, the ISI's education initiatives, culminating in the establishment of the International Association for Statistical Education, has witnessed continuing growth, and plays an important role in the development of statistical education around the world.

Unfortunately, in this brief historical overview it is impossible to note the contributions of the countless individuals and organisations that have helped to contribute to the ISI/IASE statistical education programme. To these individuals and institutions we express our sincere gratitude, and look forward to future ICOTS successes.

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