

International Statistical Education Newsletter

A Publication of
the International Statistical Institute

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Vol. 3, No. 2 - June 1983

EDITORIAL

Anyone who is now at the end of a formal career in statistics - aged between 60 and 65 - will have lived and worked through two substantial periods of change: the remarkable expansion of the subject (in technical content, in breadth of applications, and in numbers of people engaged in it), and the equally remarkable development of computers. Whether changes on a comparable scale will occur again is not certain, but what is rather clear is that change will continue, and that it will not be possible to see 3 or 5 years of formal education following full-time schooling as sufficient for a life-time's work: continuing education will therefore become more and more important. What is also clear is that more than one approach will be needed: completely "in-house" training, organised and given by other employees of a firm or office, will sometimes be ideal; but for some purposes it will be necessary to call on outside experts, probably usually but not always obtained from universities or research centres. Some comments on the problems faced in one particular context are given in the Viewpoint article in this issue, but it is a very broad problem and all those concerned with and for statistical training need to consider the consequences for the future.

NEWS AND ANNOUNCEMENTS

The proceedings of the First International Conference on the Teaching of Statistics (ICOTS) held in Sheffield in August 1982, are now available in 2 volumes containing about 800 pages. The cost (for the

two) is £10.50 including postage, from ICOTS Secretary, Department of Probability & Statistics, University of Sheffield, Sheffield S3 7RH, U.K; cheques should be made payable to Teaching Statistics.

VIEWPOINT

TRAINING OF STATISTICIANS IN AFRICA*

Introduction

The training of statisticians in Africa could be said to have begun formally at least in English-speaking countries in the closing years of the 1940s, with the establishment of the university colleges of Ghana and Ibadan. It was much later that the French-speaking countries in Africa which had trained most of their statistical personnel in Paris decided to introduce professional and middle level statistics courses in the region. This was first done at the Institut National de Statistique et d'Economie Appliqués (INSEA) at Rabat, Morocco.

It may be recalled that in the early 1960s the English-speaking countries of the region has started middle level statistical training courses with the assistance of the United Nations. By the end of the academic year 1965/66, 217 certificate level holders had been produced by the statistical training centres at Achimota, Addis Ababa and Dar es Salaam. By the beginning of the 1970s the position had become more diversified with 6 English-speaking and 5 French-speaking centres offering regional facilities at the professional or middle or both levels.

In-Service Training

After the formal establishment of the middle level training courses mentioned earlier, it became clear to the directors of statistical offices that the formal training centres will have to be supplemented by on-the-job training. This was not only necessary as a worthwhile end in itself but in some countries, was

a requirement for promotion purposes. In the latter countries therefore, in-service training assumed the form of short courses of two to four weeks duration organised as preparatory to the administration of promotion examinations. Later on more formal in-service training courses with the assistance of international and bilateral experts, where available, was introduced. It should be mentioned from the outset that the tying up of in-service training to promotion prospects had the disadvantage of discouraging serving personnel from undertaking training when no promotion outlets were immediately available. This was especially true of French-speaking countries where in general salaries of statistical personnel were related to formal qualifications and not to improvement in skills through in-service training. The easy way out seems to be the slight modification of in-service training to fit the requirements for formal training. But this, while solving one problem, tends to create a more undesirable one, namely the introduction of a large element of theoretical work most of which is not immediately relevant to what the statistical personnel would be required to do in their offices.

In recent times the Statistical Training Programme for Africa which was started in 1978 by the United Nations Economic Commission for Africa (ECA) with the primary object of providing Africa with a permanent and sufficient supply of statistical personnel by the end of this decade has given considerable attention to in-service training, because it is considered that facilities for the formal training of middle level personnel are rather limited. STPA has prepared a draft guide syllabus for in-service training which has to be

adapted to suit the needs of particular countries.

The declared focus of in-service training is on the practical aspects of statistics. In other words, its principal objective is to train statisticians of all levels particularly those of the sub-professional categories to enable them to carry out their functions more efficiently. However, the content of training has seldom reflected this objective.

Different models of in-service training have been tried out in the region each with its advantages and disadvantages. The first model is what is known as the sandwich course in which people are trained for specified periods, say two weeks, then go and continue with their normal duties and come back again for another period of two weeks and so on. The other approach is the day-release system, whereby the trainees is released for one day of the week to attend the course. The third approach is the more formal form of in-service training where people are trained within the statistics office for a period of three months or more and during this period do not carry out their normal work, except as part of the course. The fourth form is an apprenticeship system which is strictly training on-the-job with a more experienced statistician supervising and training lower level statistical personnel. On-the-job training has not been too successful in Africa and the record will show that a large number of international and bilateral experts have worked in African countries without leaving behind any expertise among their counterparts. There is therefore the need to look more closely at the form and content of all types of in-service training. It should be borne in mind that this form of training has to be country specific. Although guide syllabuses are useful, what is more important is the production of good course material which will go with the syllabuses because the latter by themselves will not be enough to guide trainers in improving the performance of trainees. However, the preparation of training material covering every subject in the statistical field is not an easy venture. A selective approach should therefore be used with the adaptation in the initial stages of existing training material prepared by international and bilateral experts. Preparation of material for in-service training is a time-consuming operation but if adequate resources are provided and these result in useful outputs, this will go a long way to improve the performance of sub-professional staff.

Middle Level Training

This is an area where Africa has made substantial progress over the years. About 2,000 persons have so far been trained, (1,200 from English-speaking countries and 800 from French-speaking countries) but not all the "graduates" have ended up in statistical offices. It should be remembered that the objective of statistical training at any level is to produce qualified supporting personnel not only for national statistical offices but also for other agencies of the government as well as for the private sector. At present, there are eight middle level statistical training centres with an average annual output of 240. It is recognised that this annual output will not meet the needs of Africa and attempts will be made to double this rate. Many of the centres, however, have found it impossible to cope with the additional demands on their services which any doubling of intake will entail. Thus requests have been submitted to international organisations for assistance. One of these requests has resulted in the EEC undertaking a joint study with the ACP and ECA on the needs of African countries for statistical personnel at all levels.

As with the wide gap between demand and supply of middle level statistical personnel, it has been suggested that their training should become a national rather than a regional responsibility. However, in view of specialised personnel required for teaching purposes and the lack of resources in many African countries, the regional statistical training centres will have to provide assistance in this area in the foreseeable future.

Professional, Post-graduate and Specialised Training

As with the other levels of statistical staff supply still lags very much behind the demand for professional statisticians. However, that is not the only problem facing the development of professional training programmes in Africa. It has become recognised that there should be practical orientation of training courses for African statisticians. This had led, for example, to the introduction of the B.Stat. course at the Institute of Statistics and Applied Economics of the University of Makerere, Uganda. However, it is not clear whether in the long run the performance of statisticians trained under the B.Stat. programme differs appreciably from that of those who followed the more traditional B.Sc. course. It may be worthwhile to do a tracer survey of both groups of graduates to assess their contribution to the improvement of statistics in their areas of work.

The comments made above refer also to post-graduate training, where training up to Masters degree level is becoming common in the region. However, Ph.D. training, which is offered only at Ibadan at present, may take sometime to expand due to the shortage of staff who can supervise research at the highest levels.

Specialised training courses such as those for practising survey statisticians or national accountants have had a narrow focus and have been concerned with the solution of practical problems. They have thus proved useful not only to the participants but also to the implementation of the work programmes of the organisations which sponsored the participants. The success of such workshops could be a pointer to the type and content of additional training most useful to serving professional statisticians.

CONCLUSION

There are at present not too many examples of successful in-service training programmes in the African region because of the failure to determine the objectives of such training clearly to the participants as well as to the organisations in which they serve. Middle level training has proved immensely successful and their "graduates" have performed well in all organisations which have employed them.

Unfortunately the same cannot be said of the graduates of professional training. In my view, the fault is due not to the graduates but to the absence of a satisfactory working environment for statisticians in the region. The failure to develop statistical data applications and analysis has meant that most practising professional statisticians have ended up doing dull and routine work in the field of data compilation. Unless there is a change in the type of work professional statisticians are called to do, involving the increasing use of interesting statistical tools or methodologies, the unsatisfactory state of African statistics will persist.

Another point to be borne in mind is the proper mix of statistical theory and applications in the content of training. Attempts to do this has not so far yielded the ideal solution. There is need for further experimentation in this field.

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*The views expressed in this paper are the author's and do not necessarily reflect those of the United