

INFORMATION

S O C I A L P O L I C Y

PROGRAMMED TEACHING IN THE EUROPEAN COMMUNITY

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A facet of common professional training policy which has emerged only recently is what is known as programmed teaching.

This technique, which may be defined as teaching method based on experimental psychology, aims at greater success by the use of a more precise analysis of the processes of learning themselves.

The Commission has entrusted the European Institute for Professional Training in Paris with an examination of the overall situation in the Community as regards the new method. This note is intended merely as a brief synopsis of the main points of this study.

Team-work

The new teaching method relies on texts structured differently from those used in classical taught course methods. The preparation of these texts is a team activity and necessitates testing representative samples of the population groups concerned by the proposed course.

Before writing out a course of any kind, it is necessary to determine its objectives by defining the processes that pupils who have had the benefit of such a course should be able to carry out. The next step is to draw up admission tests designed to admit only those pupils capable of deriving this benefit from the course, and final tests which will show with a sufficient degree of precision to what extent the content of the course has been assimilated by the pupils.

At the same time the team must get on with selecting the concepts, subjects, and key-words and terms explanation of which will be necessary to allow the pupils to make reasonable progress. They must also decide upon the order in which the various notions are to be presented.

When this preliminary work has been satisfactorily completed, the actual writing of the course can be begun. The latter will consist of a series of steps, each one comprising a piece of information followed by a question. The texts are written not from the point of view of the teacher, who is in possession of the facts, but from that of the student who does not.

Advantages of the new method

A number of advantages accrue from the use of programmed teaching, which was devised by Prof. Skinner of Harvard about 1950. By its use, study-time required is reduced, and better results have generally been achieved than with traditional oral teaching methods. The method allows the pupil to work at his own speed without direct teaching, which is a crucial factor in the developing countries where there is an acute shortage of teachers, and in the field of adult education.

In short, a direct comparison of the old and new methods from the point of view of demonstrable results shows that study-time is often a third less with programmed instruction, that individual pupil performance is uniformly better, and that a greater homogeneity of results is maintained.

There is however no question of any conflict between the old and new methods: in fact this new technique should be seen as a means of accustoming sections of the population as yet relatively little touched by or concerned with learning or education to intellectual effort, especially where trained teachers are not available in the numbers required.

From Book to Computer

Courses given by programmed teaching may be presented in different forms. The commonest is in book-form, but in this case the book in question will be very different from a traditional type of text-book. Such a book

is defined as "simple" if the text, drawn up according to the new method as described, follows the train of thought directly. The term "scrambled" is used where the answers, instead of following the questions directly, are placed separately so as to require a personal effort on the part of the pupil.

Two devices which are of great usefulness in programmed teaching are the learning machine (an opaque box with a couple of apertures through which a film of the course material is shown, exactly as a reel of film passing through the projector) and the computer. Properly used, the latter is capable of imparting information to the pupil and of correcting his errors. In this way every student's individual needs may be met, their maximum potential being discovered by the teacher.

Use

Until now programmed teaching has developed unequally in the Six. The only experiment on a European level was undertaken in 1964 by the High Authority of ECSC. This was the drawing up of three model courses on subjects dealt with in mine and steelworks training courses. Of the six Community countries, Germany has been the most active in this field. Three University Institutes devote special attention to this new teaching method: at Aachen, Giessen (Justus Liebig), and the Berlin Institute of Cybernetics. This last-named institute, working largely with the aid of teaching machines and computers, has sought to entrust the maximum possible proportion of intellectual effort to mechanical aids. Its staff see as feasible within 5 or 10 years the setting up of a teaching system, aided by computers, which would cover from 8,000 to 10,000 primary schools, or a quarter of such schools throughout Germany, and from 50 to 60 Teacher Training Colleges. Throughout these institutions half the subjects on the curriculum would be taught by the new method.

In France, the National Institute for Adult Education in Nancy has set up an introductory course in programmed teaching and a course in programming. Investigations have shown that, under the traditional methods of teaching, adults experienced difficulty in understanding technical terms and in grasping syntheses, but also that programmed courses must not last longer than two-and-a-half or three months.

In Belgium, secondary school teachers have had to study programmed teaching methods since 1967. There are numerous programmed courses in use in both secondary education in professional training.

In addition, in several countries, large enterprises, including the armed forces, use this method in training personnel. It is used in Germany by Ford and Karstadt, in France (where there exists an Association of the Professions for the development of programmed education) by Merlin-Gerin and Shell, in Italy by Montecatini-Edison, and in the Netherlands by AKU and Phillips.

Overcoming difficulties

Despite these achievements, development has generally been very slow. The difficulties are unquestionable: teachers are often only superficially informed about this method, and institutions cannot see how they could make use of it. To make things worse, programming is often a very demanding business. In order to advance the development of the technique, the following efforts will have to be made at Community level: a general information campaign (familiarizing those concerned with the new technique, its principal achievements and potential, and the bodies which have advice to offer or can provide specialized personnel), research, and the writing of programmes on a large scale. By laying down harmonized European standards the treatment of research work and the training of programmers could be made uniform.