Trends and cases

Research into new educational methods in Czechoslovakia

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A long-term programme for the gradual transformation of the entire educational system to keep it abreast of the development of socialist society and of the scientific and technological changes is now taking place. The principles on which this programme is based were worked out by the country's educational research institutes, with the assistance of the education authorities. Its purpose is to relate the educational process more closely to the development of socialist society, and to the interests and requirements of the individual, to progress in the fields of science and technology, culture, industry and the economy, to further the process of democratization of education, and to raise the educational level of all members of society.

The educational research institutes of Czechoslovakia are currently working on the complex, responsible task of devising a forward-looking educational system to go with the above programme. One such establishment, the Jan Amos Komensky Pedagogical Institute of the Czechoslovak Academy of Sciences, is investigating some of the theoretical and methodological problems related to this system and to its gradual introduction. The preparatory studies and the various research activities which it has carried out, and which provide the basic scientific material for drawing up a general picture of the socialist school of the future, include research into new and more effective methods of instruction.

This research is based on the premise that school education is a complex process, fundamental to the formation of a well-rounded personality. This process is not considered in isolation, but in relation to the many other educational stimuli provided by society and to the many non-institutional formative influences exercised by the environment. The objective of the process is the acquisition of knowledge and skills, the development of intellectual and practical abilities (particularly creative abilities), the formation of interests, of a scientific world view, of a socialist morality and aesthetics, and of all the professional and physical qualities associated with the socialist man.

Two issues were discussed before the research activities began. The first concerned the definition of effectiveness of instruction in the socialist school. A fundamental criterion for the assessment of such effectiveness is the qualitative and quantitative change which school instruction brings about in the knowledge, skills, abilities and personal qualities of each pupil. A further important criterion of effectiveness is the amount of time required to effect a specific qualitative and quantitative change; as a general rule, it may be said that the shorter the time required, the more effective the instruction which produces that change. In the socialist school, however, there are very considerable complications and variations in time requirements. As a number of studies have shown, it is possible to reduce the time required for acquiring simple notions and skills, whereas the acquisition of an entire system of knowledge or skills, the development of capacities or the formation of a scientific world view or certain moral qualities, to quote but a few examples, require more complex methods and involve

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pupils in individual efforts and problem-solving activities, all of which takes rather a lot of time. Nevertheless, experiments conducted in the U.S.S.R. (by L. V. Zankov, D. B. El'konin, V. V. Davydov and others) and in other countries have shown that it is possible to save teaching time; for example the primary school syllabus for children aged 7 to 10 may be completed in three rather than four years without adverse effects on the health of pupils.

A further criterion for evaluating the effectiveness of instruction concerns the number of pupils and the structure of the group of pupils involved. Instruction which produces specific results in a given time with a large number of pupils is undeniably more effective than instruction which has the same quantitative and qualitative effect, during the same period of time, on a smaller number of pupils. Obviously in applying this criterion the homogeneity or heterogeneity of the groups of pupils concerned should be taken into account.

Effectiveness should also be considered in relation to the effort expended in the learning process. Such factors as the nature of the instructional process involved, the aptitude of the pupil, how tired he gets, how good he is at concentrating and so on, are organic elements in the assessment of effectiveness. Other criteria include the amount of effort expended by the teacher (related to the conditions under which the teacher works) and the amount of effort expended by society as a whole in order to provide that instruction.

The second subject of debate before we embarked on our research concerned the theories of various specialists concerning the improvement of the effectiveness of instruction. Among the theories considered were: the theory of basic educational material (the Czechoslovak specialist O. Chlup); the theory of the structuring of the subject (the American psychologist J. S. Bruner and others); the concept of problem-oriented teaching (the Polish specialist W. Okón); the theory of instruction by example (the Federal Republic of Germany authors M. Wagenschein, H. Heimpel et al.); the theory and practice of programmed instruction (the American scientists B. F. Skinner, N. A. Crowder; the Soviet research workers L. V. Zankov, A. N. Leontiev, P. Ja. Galperin and others); the theory and practice of "developing instruction" (the Soviet psychologists and educators L. V. Zankov, D. B. El'konin, V. V. Davydov and others).

After a critical analysis of these and other theories, our own investigation took as its point of departure the concepts of basic educational material and of developing instruction, in which emphasis is laid on the importance of harmonious all-round individual development in a socialist society and great attention is paid to the choice and structure of teaching material from the point of view both of the present state of scientific knowledge and its future development, to the choice of methods corresponding to the objectives, to the nature and structure of the teaching material employed and to what Soviet psychology has to say about the learning process and to the development of the learner.

On the basis of the above considerations and bearing in mind the tasks of the Czechoslovak socialist school, a pilot project for teaching mathematics and the mother tongue in the second, third and fourth primary grades of the experimental school attached to the Komensky Institute was gradually developed. The emphasis was to be on providing knowledge and skills of a high quality (interrelated rather than isolated from each other); the development of abilities and activities of an intellectual and practical (especially creative) nature; the development of an interest in learning and knowledge; the acquisition of certain elements of the scientific world view, socialist morality and socialist aesthetics and the professional and physical equalities of the socialist man. With these objectives uppermost, a set of teaching materials was prepared. The distinctive features of these materials were their more scientific character (being used in combination with empirical teaching material,