THE ORGANIZATION AND MANAGEMENT OF EDUCATIONAL MATERIALS

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Education and Social Change

A great deal of thought is being given all over the world to the question of education being an agent for accelerating economic, social and cultural change. If things are allowed to drift and take their own course, the rate of growth of the economy and the associated facets of culture and education is bound to be slow. The imbalances and maldistributions which exist in the developing countries in particular cannot be overcome rapidly, while their existence for any length of time creates social and political problems. The state of the world, and man's knowledge of it, are such that people compare their conditions with those of other sectors of society and other countries, and they place high expectations for transformation of their lives with their country's leaders. It is in this context that education has to play a positive role as an instrument of development and change.

It is again in this very context that objectives of education are established by any government in any country. These objectives are specific to the history and current needs of the situation in any given country. Therefore, no country can really provide a model for a ready-made answer for another; but each can certainly learn creatively from the experience of the others.

Social objectives and, in turn, educational objectives determine to a large extent the nature and pattern of the organization and management of educational materials; so also does the choice of materials from the large variety that is available.

Special Problems Arising from Social Purpose and Conditions

In India, after Independence, popular expectations have been roused to an immense degree since equality of opportunity is the demand of every section of a democratic and free society. Each section knows that a great many opportunities in life are connected with the various levels of education and training. Hence, there has been a great demand for all levels of education. Equality of opportunity for the individual and, in fact, rapid economic development in the society are connected with universalization of elementary education. We have found that the deprived sections of the society cannot afford to send their children to whole-time schools for given periods of time in a year and for a span of several years. The children are a source of some financial or service benefit to the family, and the poor cannot afford to give up this advantage. This obliges us to think of various patterns of non-formal education departing in content and in institutional structure from formal education. The implications of this approach for the organization and development of materials are immense.

An important educational fact is that children learn a great deal within their families in the pre-school stage. We cannot intervene to give a better quality of learning to this stage of experience without the education of parents and a change in living conditions. Even if we leave this immense task to be taken up separately, it is a fact that the child learns far more efficiently in the school if he is taught in the mother tongue. Now in a vast country like India this involves the production of educational material in a large number of languages. Even the constitutionally-recognized major languages are fifteen in number. For historical reasons in our country, education is a State subject which means that the content and organization of education is the business of the various States. This again is connected with the question of a large number of languages in which material has to be produced and makes the problem specially complicated.

Our educationists have come to the conclusion that in order to save education from becoming bookish, it has to be based on the environmental approach. In the very first few classes at school we need not differentiate between science and social science because a child's experience is not boxed in such categories. On the other hand if environmental situations are to be a source of learning, then we cannot have a fixed and set pattern for the whole country. We can give guidelines; we can prepare teachers; but a great deal of initiative has to be left to the teachers and managers of schools, and obviously this complicates the situation with respect to the organization and management of educational materials.

Our social system which has given rise to our expectations and aspirations also demands that education is not to be neutral with respect to values. We cherish social justice, socialism and secularism; and while we have a multi-cultural policy we need a concerted effort to bring about national integrration. Now these are new values and new social objectives which arose as a consequence of the independence of our country, and the problems before educationists and those who manage and develop educational materials is how to build these values in various disciplines positively, and - on the negative side side - how to identify and, if possible, eradicate contrary trends which tend to persist and are even generated afresh time and again.

I wish to indicate by these comments that there is a close relation between social objectives and educational materials and their management, and it is quite obvious that this is not a simple problem in which one country's experience can be of direct use to another. The situation is further made difficult by the fact that the countries with high aspirations for the future have scarce resources at the national level, and so also at the individual level where one cannot afford to buy even seemingly inexpensive material, where mass media like radio and TV have serious limitations. In our country there is, however, a great asset in the fact that we have a large base of know-how at all levels. We have scientists, philosophers, and educationists: we have technologists in all fields including film and television. Therefore, whatever effort we decide to make, recognizing fully the social responsibility and the complicated situation, we can potentially implement no matter what the software and hardware required may be.

The Central Agency of Development and Management in India

Before focussing attention on the specifics, let me indicate that while education is a State subject there exists a very powerful machinery for consultation, discussion and possible implementation. One of the facets of this machinery is the National Council of Educational Research and Training (NCERT). This is an autonomous body funded by the Central Government,

closely related to the governments at the Centre and the States because the highest policy-making organ of the NCERT has State Education Ministers as its members and is presided over by the Union Education Ministers. On the other hand, as far as its internal management and academic policies are concerned, it is free to make its own decisions. It is academically equivalent to the Central Universities. Thus the National Council of Educational Research and Training is an independent body, an academically-oriented organization, and yet its policies are practical and its priorities are realistically based. To a considerable extent in the field of education it can talk to the States irrespective of the political complexion of their governments because the basic objectives are not challenged by anyone.

The NCERT plays a very considerable role in all aspects of school education and certainly in educational research at all levels. It has departments with academics who can develop the total concept of school education in the form of a curriculum, with a consultative machinery of people from all over the country. It can cause textbooks, supplementary readers, teachers' guides and any other needed material to be written and produced. It develops kits useful for science education, mobile laboratories and television programmes and films. It has an apparatus for extensive evaluation of this material in the school system, and it also runs four Regional Colleges of Education to see how the materials fare in practice. The credibility of this Organization on the academic plane is very high, so much so that many States are now setting up State Councils of Educational Research and Training. The books produced by the NCERT and the kits developed by it have found favour extensively in the country and abroad.

Educational Materials

Textbooks

Textbooks are the most popular and perhaps the most important educational material. They are cheap and their content is explicit. But as I have indicated they are a very difficult material to handle in a modern educational system with a multi-lingual population. Obviously, no central organization can produce textbooks which could serve as more than a "model" in a country like India. This is because the States have their own academics who need not always agree with the contents of the centrally-produced material and also because different cultural, historical and environmental backgrounds have to be taken into account. Once the States produce their own books, there are two types of problem. One is that in each State there are linguistic minorities which may number as many as fifteen. The number of people belonging to some of the minorities is small and it is expensive to translate books for them. Books cannot be borrowed from the States sharing a minority language because the syllabus may be different. As a solution to this problem, we would like the curriculum to be divided into units which transcend the conventional boundaries of disciplines such as history or geography or physics or chemistry. The unit system has many other advantages but in the present context we believe that the States could take a large number of units from the central pool without change. Where they feel that their specific needs require different units they will have such units produced in the States. Therefore, it is possible that a large percentage of the curriculum, perhaps 60 to 80 per cent, could be common all over the country for a few years until it is reviewed by an adequate machinery of consultation. The common curriculum could then be translated into various languages and used in the school system. The problem of providing suitable books, or a collection of units, for the minority schools would then be reduced to the problem of multiple translation of the specific curricular units which a State wants.

The danger in a highly centralized curriculum, or even a core of the curriculum, is that the possibilities of modification and improvement are reduced; these possibilities require a multiple alternative type of approach. However, the decision has to be taken in the light of the cost involved.

One of the great problems we have faced in connection with textbooks is the training of authors. Academics are so straight-jacketed that they tend to perpetuate what they themselves have learnt. The needs of today's situations are very different as I have described earlier. Therefore, the training of authors is not only from the point of view of style or other techniques (such as illustration by suitable diagrams and the choice of proper exercises), but in the substance of what they want to communicate. This is a problem which is being tackled and we are gradually building up a group of resource persons in every State.

In connection with textbooks, it may be mentioned that the NCERT's textbooks are produced through a system of subject panels. Once the curriculum is identified and the scope of a particular subject in that framework is made clear, level by level, a number of people who are subject experts and those who have been teachers in schools are assembled to discuss further details. The draft of the book is written and circulated widely for comments and, where possible, tried out in the schools for some time. A stage then comes for the book to be printed and made available at cost price. In the States there are two systems; one is similar to the NCERT process and the other is a system of approving textbooks produced in the private sector. The books published in the private sector are more expensive, quite often two to three times more expensive. Hence, there has been a tendency for the States to enter this field more strongly over the years. The practice of different institutions selecting books on the advice of their own staff or committees is giving way to the practice of accepting the books prescribed by the Boards which conduct school-leaving certificate examinations or the State Departments of Education.

Films

We have a Central Films Library in the NCERT which has thousands of selected educational films available for loan to subscribing institutional members. In the States too there is a facility of distributing films. Here again one of the most important problems is language. A large number of good educational films available are in English and since education in the mother tongue was adopted as our policy, children are unable to really benefit from these films. Besides, the overall content of the English language films is alien to the way of life in our country and this proves, at least, to be a distraction. Therefore, there has been considerable effort and emphasis on indigenous production of films.

The NCERT has made a number of scientific films, particularly those which go with the science kits, but the problem is to have the films available in a large number of State languages. Various techniques are being tried out. Since the educational films rarely use direct speech by those who are on the screen, the problem of synchronization is simpler, and the technique of having a cassette recorder with the commentary in different languages fed through the amplifier of the projector is being used successfully.

The purchase of films as well as the preliminaries to the production of films are based on committee work where subject experts as well as educationists are involved. We have a large programme of producing various kinds of educational films in the country. Some of our efforts at the moment

are directed at the satellite instructional television experiment (SITE). The Ministry of Information and Broadcasting and the Indian Space Research Commission are handling the software and hardware respectively but a number of educational films are being made by other organizations. The NCERT is making films for teacher training in SITE. These are not programmes of institutional education because the television audience would be a mixed age-group. These programmes have been so carefully worked out that every village where the receiver is installed was studied for its sociological aspects.

Tapes

Video and audio tapes have also been recently taken up for extensive use in the educational system. The programmes connected with the satellite are mostly on video tapes, and experiments with video tapes in educational institutions are being done in a number of places. As far as audio-tapes are concerned, these are being made on a small scale to supplement correspondence education and also to provide general education. One of the projects in hand is the collection of tapes of important cultural, scientific, political and historical events which are already available in the archives of various agencies in India, and to edit and add commentaries to these tapes so as to interweave them in educational programmes.

Science Kits

Science kits have been developed at the NCERT for the first eight years of schooling. These kits are of great importance because education in science is to be compulsory in India up to class 10 (i.e. for students of age 16+). Education in science is also likely to contribute to the development of a more rational and a more open outlook which would be conducive to strengthening concepts of human equality and national integration. These kits are quite inexpensive and their development was based on a great deal of consultation with experts and trials at schools. The kits are accompanied by instruction manuals and they have lately been strengthened with corresponding films. The project was assisted by UNICEF and the kits produced were distributed to a number of schools in the States. Although the number of schools receiving the kits ran into some thousands, that was a drop in the ocean because we have approximately 600,000 schools. The States have now taken over the task of procuring kits for their schools. Extensive facilities for training of teachers to use the kits were provided by the NCERT and by the State Education Departments. A number of teacher training colleges and schools have also been provided not only with the kits but with some other science equipment to strengthen the training of teachers.

Resource Centres

A national centre for textual materials was set up in the NCERT. Textbooks from all the States were collected and placed in the Centre but the development of the Centre has been stifled for various reasons. The periodic change of prescribed textbooks is a great problem. At the moment a large number of centres are operating in the country which may be called resource centres. There are State-run and private organizations, called community science centres, where a good deal of material is displayed, where students can work on scientific projects or in the workshop, and where training is provided for teachers. Of course, there are film shows and exhibitions connected with these centres. Some teachers' organizations have voluntarily started resource centres in district towns. These work in a manner similar to the teachers' centres in England. They have textbooks and other books to benefit the teachers in various subjects and some of them have facilities for showing

films and even for producing teaching aids by mutual assistance. There are also extension service departments attached to teachers' colleges which have a selection of instructional aids and materials. But admittedly in this field we have not made a great deal of headway.

Museums and Exhibitions

The use of museums and exhibitions, particularly to strengthen the teaching of science, has been given considerable attention in the last few years, and mobile laboratories and museums are being assembled to help the schools particularly in the rural areas. There are programmes of adult education in the country which would involve the setting up of a large number of Nehru Yuvak Kendras (Nehru Youth Centres) which would have facilities similar to a district-level resource centre. A large number of such centres have already been established and are functioning with a great deal of local initiative.

We have not undertaken any extensive studies on cost-effectiveness of educational materials or establishments. But this is admittedly an important aspect to develop. At the moment one is guided by certain broad concepts and values with respect to the various materials and media.