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Educational Research — A Perspective

A Trend Report

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Educational research is of recent origin in India. A comprehensive account of its growth is given in Buch (1974). It may be observed from this account and the subsequent attempts to organise educational research that more systematic and planned efforts have been made in this regard during the last two decades or so. During this short span of time a few significant trends have emerged. First, institutions like the National Council of Educational Research and Training have been striving to arrive at priorities in educational research. The main purpose of such exercises is to intensify the scientific efforts to tackle those problems which are of immediate concern in the field of education, and are of greater relevance when seen in the wider social context. Further, the efforts have been concretised by these institutions through the channelisation of financial assistance in a preferential manner to individual researchers and institutions who wish to engage them for tackling these problems through research. Second, the University Grants Commission (UGC) introduced in the early sixties a scheme for developing a limited number of university departments for advanced research and training in selected fields. The Department of Education of the Maharaja Sayajirao University of Baroda was recognised by the UGC as the Centre of Advanced Study in Education (CASE). This Centre has been encouraging the pursuit of excellence and team work in educational studies, and thereby, seeking to attain international standards. For facilitating this work at the CASE, a team of full time researchers of an optimum size needed for meaningful and penetrating interactions on issues of significance have been provided by allowing the CASE to award various fellowships for research, viz., junior research fellowship, senior research fellowship, teacher fellowship, and visiting fellowship. Third, more recently, a few departments of education in Indian universities have been identified by the UGC under the Faculty Improvement Programme for awarding ten to fifteen teacher fellowships to teachers from other universities and colleges. The scheme is intended to have a two-fold purpose. One, identified departments will strengthen their research efforts in certain selected areas through the technical association and assistance of the augmented strength through teacher fellows; two, the teacher fellows after their orientation in research and involvement in certain research projects will go to their parent institutions as more enlightened persons with better research acumen, and will pursue similar work there. Further, the NCERT has been initiating quite a few research projects in collaboration with certain universities and other institutions in different parts of the country. Similarly, the Indian Council of Social Science Research (ICSSR) has farmed out a few projects of educational significance to different institutions in the country and attempted to seek developing coordinated research efforts for tackling problems in a scientific manner. These cooperative researches help in dealing with research problems of significance at the national level. As seeking solutions to these problems through scientific studies will demand accommodating suitably a whole complexity of variables pertaining to language, socio-cultural differences, etc., cooperative research of this type presents an effective arrangement for its organisation. At the same time, it helps in building certain centres of educational research in different parts of the country and thereby increases the national research potential to prepare a ground for more coordinated work, to be carried out in a scientific way aimed at seeking solutions to national problems. Fourth, there has been increasingly greater efforts to enrich educational research through an inter-disciplinary approach. This has been concretised by the UGC through the establishment of cells in certain university departments in disciplines that are cognate to education, viz., psychology, economics, etc. Similarly, a few institutions

like the Institute of Social and Economic Change, Bangalore, have been concentrating to study education as a broad process in the context of social and economic life. Quite a few other institutions which are concerned with research and development, but are not primarily meant for conducting educational research have undertaken researches on select problems of education with special reference to their area of knowledge and their activities related to development. This trend of interdisciplinary approach to educational research is indicative of studying the educational process and other related problems of education in a broad-based manner. This would increase the possibility of gaining scientific understanding of education in well-differentiated forms, and thus make it more relevant to real problems of the society. Apart from the trends mentioned above, regarding the growth of educational research in this country, one may observe that various universities have been striving, of late, to organise and develop their education departments more effectively in terms of personnel and other facilities. Similarly, many states have established institutions which undertake research and development programmes in various aspects of education. Further, for individual researchers there are substantially increased facilities both of financial and academic nature, through various schemes of research fellowships and financial assistance not only at college and university levels but at school level too. Certain other facilities which may be an index of growth of educational research are various research publications such as journals, periodic surveys, monographs and technical reports of projects, devoted to the communication of research outcomes and for providing a forum for exchange of views on matters of educational significance.

Besides the trends in the organisation of educational research in this country, as discussed, there have been a few other significant trends which are thematic by nature. As the subsequent chapters would reveal, there has been an increasingly large number of studies which deal with the core problems of education. For instance, one does find in Indian situations now, that research outcomes have started resulting in concrete instructional materials and detailed sequential arrangements to carry out instruction in an organised way for certain courses at various levels. Similarly, developmental studies on evaluation, curriculum, etc., have been the themes of certain research. Further, a few projects have been initiated institutions like the NCERT through

which attempts have been made to study education in close relation to the economic and social life of the community. These trends go to establish that, gradually, educational research is moving towards an era when it can be expected to make a more direct impact on improving the educational system, making it substantially contributory to the solution of problems in the society at large.

These trends in educational research with reference to its organisation and substance indicate a pertinent point that educational research has to be relevant to the problems of education, that it continuously evolves effective instructional processes which would respond adequately and concretely to the needs of individual development and social progress. This highlights the necessity for organising educational research in such a way that it helps in realising the goals of national development by generating necessary processes. In order to ensure that educational research can do that, it may need a clearer perspective for itself with national development as the ultimate goal to be achieved through it. It is in this context that educational research has been examined in the present chapter.

EDUCATIONAL RESEARCH IN THE CONTEXT OF DEVELOPMENT

As discussed, in recent years there has been a greater emphasis on relating the process of education with the development of the society. By development is meant evolution of the society towards particular goals. These goals represent the changes to be brought about in various aspects of individual and social life. However, the goals set for any society will not be of an absolute nature. These would be determined by the stage of evolution the society has reached and the potential it has for further development. Thus, the process of formulating goals, and concretising attempts to realise them will be a continuous one. The process of concretising these attempts will mean introducing certain inputs in specially designed ways, to initiate the development at individual level, and thereby effect a larger social change. In any society, it is through the system of education that deliberate attempts are made to introduce such developmental inputs. It may, however, be mentioned that many other subsystems of the society, viz., polity, economy, religion, etc., will necessarily have considerable influence on individual and social development. And, many a time, these influences could be contradictory. The subsystem of education, therefore, shall have to be designed in such a manner that it channelises the influences of

the other subsystems to realize the developmental goals. Further, deliberate efforts will have to be made to nullify the contradictory influences that these subsystems might exert. For this, the educational system will have to reconstruct itself continually and develop linkages with other subsystems too so that the total educational endeavour thus evolved would respond positively to the developmental needs. In order to ensure the effectiveness of such an educational endeavour, it may be necessary to analyse the process of education, identify and develop the inputs of this process, and study its operational aspects in the wider context of the society wherein there is the interplay of other subsystems too. As there would be changes in the conditions under which the whole system operates, there arises a need to continually carry out such exercises in a systematic and scientific manner to bring education and development in consonance with each other. It is towards these efforts that educational research can make its contribution.

Scope of Educational Research

Viewing education as a process towards development would obviously mean evolving certain educational models and structures through which changes could be brought about. This would, however, presuppose an important task in which educational research could be of significance. This task is to identify the determinants of development' from various aspects of life — past and present, which seem to have guided the general life styles in the social, economic, political, religious and other spheres. Identification of these determinants will help visualize what is of relevance to individual development and social progress. Also, it would throw light on the readiness of the societal system to absorb a particular system of education that is envisaged for its development. The exploration of determinants will be mostly into the philosophical and sociological aspects of life, which would form the main bearings for the educational models and structures to be evolved.

Apart from the explorations of determinants, educational research has to deal with certain processes and relationships on which it should base the models and structures of education. These processes and relationships will constitute the body of knowledge that can be considered as the core of education as a discipline. Further, this knowledge will be utilized chiefly, to generate the processes of instruction and the needed structures. The evolution of these processes and structures will involve dealing with several aspects of life and the physical environment. This would mean drawing upon the knowledge from several disciplines comprising the behavioural and physical sciences. Utilisation of the knowledge from these disciplines in an integrated manner would be the main work to be undertaken through educational research efforts which would lead to the evolution of the models and structures.

Developing models and structures in education is essentially a problem solving activity. It is problem solving in that it seeks to utilize available knowledge of processes and relationships, with given resources, to arrive at solutions to certain problems in education. This activity involves hypothesising about the relative effectiveness of alternative approaches as solutions to given problems, and testing them for the same. As the position of the resources available changes, and as the knowledge about the processes and the relationships gets enhanced, there would be a need to carry out this activity on a continual basis. This will have to be done by identifying appropriate inputs in education and studying their effectiveness. Since these inputs would be innumerable for a given situation, they will have to be sequenced and integrated to form suitable models and structures for carrying out instruction in an organized manner.

Research efforts in the realms discussed above would be complementary to one another aiding the identification of specific developmental approaches that would constitute the very system of education. It is due to this complementary nature of research efforts in apparently distinct educational areas that the whole research endeavour in education has to be viewed in a systematic perspective. Considering that the total educational system stands for development, research efforts directed to studying those aspects of education which may be remotely connected to the core processes such as teaching-learning and its organization and management, may have to be carried out with a view to developing insights into certain societal dynamics that would provide, though indirectly, a very positive support to the whole educational system. Another point to be mentioned regarding the research in these realms is that, studies therein should not be visualized as chronologically sequenced terminating in the evolution of models and structures. Instead, they should be seen as continuous efforts to be carried out under the conditions, as they would prevail at different points of time, created by the execution of the evolved models and structures on one hand, and

the other changes in the wider context of the society, on the other. Such a continuous process of research will throw new insights into basic processes and relationships in the emerging context which have to be fed into the process of evolving the refined models and structures in order to respond to the new demands put on the education system by the evolving society.

That considerable research efforts have been made in different areas of education is evident from what has been reported in the comprehensive survey referred to earlier. Subsequent chapters of the present volume further substantiate that the trend of increasing such efforts has been continuing. A close scrutiny of the research efforts shows that these have made a definite contribution towards linking education with development. When these efforts are viewed in relation to developmental needs of the evolving Indian society, a few significant directions for further research seem to emerge. An attempt is made in this section to present a few dimensions of these directions that can serve as a perspective for viewing and gearing the whole educational research endeavour towards development.

Systematisation of the Teaching-Learning Process

Any improvement in education should essentially reflect changes in the process of teaching. The bulk of institutionalised education is carried out in the form of classroom teaching. Therefore, research in the area of teaching and teaching behaviour as exhibited in the classroom has received considerable attention. Studies on this theme, by and large, seem to reveal a definite trend. Initially, attempts have been made to identify various aspects of teaching; thereafter, efforts in quite a few studies have been to find the elemental relationships in these aspects when seen against the criterion of effectiveness of teaching. These studies have led to studying experimentally the effectiveness of appropriate teaching behaviour for realising certain learning outcomes. Studies under this category have been laboratory-type experiments which are carried out under controlled conditions, mostly for a short period of time, and for a limited content matter. These studies have contributed to the scientific understanding of the process of teaching-learning and have tried to identify effective conditions for it and their interplay. However, since these were laboratory type experimentations under controlled conditions, many variables that would operate in a real teaching situation could not be studied fully. And, to that extent the generalisability of the findings was delimited. This methodological issue led to

studies of longer time duration covering greater quanta of content matter and, thereby, allowing more variables in teaching–learning situation to operate. Such studies have been conducted in real classroom situations. The Centre of Advanced Study in Education of the M. S. University of Baroda, has taken a lead in this type of studies. This type of investigation has brought teaching and teaching behaviour under scientific scrutiny, and has shown a great possibility of understanding teaching and teaching behaviour with respect to referents in real classroom. Studies undertaken in this area so far have taken, however, a limited view of teaching and teaching behaviour. At a time when education is to be viewed as a broadbased process not confined to classroom teaching and learning alone, it is only appropriate to include within the scope of scientific investigations in this area, the teaching and teaching behaviour as can be identified in the outside environment too, and can be utilized for instructional purposes. This will include studying as to how community resources could be utilized, what teaching behaviours could be generated by these resources, how pupils' mode of learning gets changed when these resources are utilized, what learning outcomes could be attained through these additional teaching behaviours, what would be the determinants of teaching and teaching behaviours when such a broad view of teaching is taken, how these behaviours could be developed and effectively utilized, etc. These are some of the pertinent questions that have to be answered through research if the educational process is to be related to other aspects of community life and development.

Another aspect of the process of teaching-learning that has been studied considerably pertains to the identification of various instructional inputs, their modes of presentation and their relative effectiveness with respect to the instructional goals. Most studies directed to investigate into this aspect have been of the laboratory type wherein inputs like 'programmed learning material', have been identified, their modes of presentation and manipulation have been specifically defined and their effectiveness studied. These studies have increased the understanding of the teaching-learning process as their results indicate the extent to which certain learning outcomes can be obtained with the utilization of given inputs under specified conditions. However, when these results were processed to be utilized by the practitioners in the actual classroom situations, a major difficulty was felt in that these situations differed very significantly from those obtained under controlled experimenta-

tion. And, therefore, strict adherence to creating conditions for various inputs similar to those specified in these experiments led to making the situation too unreal and artificial to be feasible for practice. While specifying the inputs and the conditions under which they operate in all details is necessary for a scientific study of the teaching-learning process, their being different from the real classroom conditions presents the problem of replication of these operations. This problem led to designing studies in such a manner that the effectiveness and efficiency of various inputs would be seen in real classroom situations. Such studies have been conducted wherein the interrelated and, sequential operation of various inputs is seen in real teaching situations over a considerably long period of time, covering large content matter, with minimum controls on the existing conditions, and collecting needed evidences in a cumulative and comprehensive manner with regard to the effectiveness and efficiency of these inputs. Research efforts in the area of educational technology at the Centre of Advanced Study in Education of the M. S. University of Baroda represent this trend. These studies are, in the main, methodologically developmental in nature as they aimed at concretising the instructional process in terms of instructional material, teacher's role, pupils' participation and the management of other conditions associated with it, and establishing the effectiveness of the instruction thus generated with reference to specified learning outcomes.

Such trends of research efforts in teaching and learning led to a methodological necessity for designing the studies to be carried out under real conditions of classroom teaching. Studies of this type make it possible to gain a comprehensive and systematic view of the instructional process. Such a systematic view would enable researchers to study in a connected manner, various aspects of the process of instruction along with the innumerable conditions under which it operates. For example, studies which aim at evolving instructional strategies for different levels and subjects with several inputs properly sequenced and integrated to fulfil specific instructional objectives, to be carried out for one complete academic session or more could be treated as core studies. While carrying out these core studies, several other aspects, some of which are management of instructional inputs and other necessary conditions, roles of teachers and school authorities in the new perspective, interpersonal relationships amongst teachers, pupils and other personnel, climate generated in the classroom and outside, and development of affect attributes over

a period of time could also be looked into in a systematic manner. Additionally, as the core studies will be conducted in real instructional settings with the introuction of new inputs, there is scope to investigate the process of change through which the new components and practices are absorbed into the existing instructional system and, thereby, study the process of adoption of innovative practices and the feasibility of their institutionalization.

Such core studies will also provide for looking into other aspects of pupils' life and the life in the community at large. These aspects will relate to many sociological, economic and cultural factors which will influence the execution of the instructional process. This influence may be remote as the factors causing it apparently are in the distant environment of the community. However, study of these may provide a very significant insight into certain relationships these factors will have with those that exist in the immediate proximity of the process. For example, motives that pupils from different sections of the community have for learning and for receiving instruction, instructional roles that parents of different backgrounds can play for their children's education, the support that the instructional system receives from communities with varying traditions and cultural practices and the extent to which certain values and attitudes of parents and other community members could be changed for the acceptance of new instructional practices are some of the significant problems that could be tackled in this domain of educational research. Bringing these aspects within the scope of such developmental studies has additional methodological advantage. In studies, where these aspects are examined without synchronizing them with developmental studies, their scope gets delimited as the evidences about the influences of these aspects on instruction can be obtained only in relation to the existing conditions. And, in effect, most of such studies become the study of status-quo and do not provide sufficient evidence with the help of which the whole instructional process can be visualized and concretised. Whereas, when these aspects are studied in relation to the core studies, it would enable the researchers to identify in a more differentiated forms the whole educational component as it permeates into the societal system. And, through this approach the instructional process will get more concretised and systematised with greater and reasonably known probability of success in achieving the learning outcomes.

The viewpoint presented in the preceding section

emphasises the contribution of educational research in evolving suitable instructional systems and studying their functioning in relation to innumerabel conditions and factors in the immediate as well as apparently distant environment. This, however, should not mean to suggest that the researches other than this type are de-emphasised. Simultaneously, laboratory-type of studies, wherein relative effectiveness of different instructional inputs with reference to varying instructional objectives, student characteristics, environmental factors, etc., under specified conditions are explored, would have to be continued. The outcomes of these studies will serve as a resource which may be appropriately drawn upon for refining and evolving effective instructional systems to meet the changing educational needs, within the scope provided by the availability of resources and other conditions in the larger system.

Models of formal and non-formal systems of education

Identifying the place of the educational system in the larger societal system in relation to other component systems would be another significant perspective for organizing educational research efforts to make them socially relevant in meeting the goals of national development.

It is often said that education has to serve as an effective instrument of change to bring about social transformation. However, effective realization of this goal envisaged, needs to be examined in relation to certain realities in the society as well as in the educational system. The first and foremost reality is that of the individual's development in terms of different aspects of life, namely, economic, social, cultural, etc. In the Indian society, there is a sizeable section of the people which is economically in such a condition that to them aspects of development other than the economic may be much less appealing. So, any educational effort should ensure the economic development of these individuals. Unfortunately, education imparted to an individual through the present system of education does not prepare them adequately for economic independence. In fact, school education makes him develop a negative attitude towards the work traditionally taken to by his family. This phenomenon is more vivid in case of the low economic section of the rural community. Moreover, since the ways of production are often too primitive and uneconomical, the educated youth of these families find it very unattractive and non-workable a proposition to join their parents for continuing parental occupation. Inevitably, this leads to an exodus of these people to cities in search of jobs associated with better social prestige. Of late, cities seem to have reached the saturation point with regard to absorbing these unskilled and semi-skilled people. This problem can be tackled effectively by suitably reorganizing the educational system which would ensure the development of individuals in economic and other aspects of life to a reasonable extent. Evolvement of such a system and its management will need certain exploratory and interventional studies to identify the placement and organization of instruction taking an integrated view of development.

The integrated view of development discussed above means that the instructional process has to ensure that it prepares pupils for certain vocations by way of developing various skills in them, and also by developing positive attitude towards work in general. This is possible when the instructional process is so organized that pupils are exposed to economically viable and efficient ways of production which have relevance to the local community life. However, training pupils in the occupations engaged in by the community in a traditional way may not suffice. Instead, exposure of pupils shall have to be made to the improved and modern ways of production. It is this exposure to the application of modern ways of production in the existing occupations in the community, that would develop in them positive attitude towards this type of work and make them willing to accept similar occupations for their livelihood later. There may be a few work situations wherein applications of modern techniques are employed in villages. But, by and large, they are with individuals or private institutions over which the school has neither any direct control, nor has it developed any linkage for their utilisation in instruction. Making these resources available solely as part of school establishment does not seem to be financially feasible for each and every village school. Moreover, the school personnel too, cannot be expected to possess all the necessary know-how for the effective utilization of these resources for instructional purpose. What may be feasible, therefore, is that education be made broad-based by seeking the assistance of the community in a more concrete way. In that case, the existing community resources will be utilized in instruction, and whatever is lacking in terms of resources will be made available to the community. This way of looking at education provides a new perspective for organizing the instructional process. Effective organization of such a process will necessitate experimental work to evolve suitable models for its overall execution.

Research endeavour in this area shall have to be carried out in a phased manner in selected villages representing different environmental conditions. In the first phase there is a need for intensive surveys of these villages with a view to obtaining information regarding educational facilities, community resources that can be utilized for formal and non-formal programmes of education, various developmental activities in progress; the personnel engaged therein and the agencies financing them, cottage industries and other occupational situations, possibilities of establishing new cottage industries and assisting the existing traditional occupations through modern techniques of production, social, cultural, and attitudinal characteristics of the people in the different sections of the community, their educational needs, etc. Information resulting from these surveys will lead to visualizing a reorganized system of educational efforts in close coordination with the different developmental activities in the village. It will also show in a concrete manner the human and material resources that could be utilized for education, and, at the same time, reveal what really does not exist in the village and what exactly may have to be provided to accelerate the development in various facets including education.

In phase II, efforts are to be made to consider each resource identified under phase I, individually, and arrive at the role it can play in the instructional process. At this stage, the main work will be to concretise the ways in which each of the resources will be utilized; necessary instructional material and detailed organizational arrangements too will have to be evolved. For example, school farm may be a resource; effective ways of exposing pupils to modern farming, allowing them participation suitable to their age, working out the place of these experiences in overall curricula, etc., may be the actual tasks to be taken up by the suitably constituted research teams. Similarly, powerloom may be a resource in the community. Its place in the instructional process may have to be identified in a detailed and concretised way. On similar lines, the role of human resources in the community will have to be delineated in all details. This will lead to the development of software material needed for utilizing each resource with educational potential in the community along with the ways in which it may have to be managed and organized. Obviously, through such an exercise there might emerge quite an overlap of curricular contents to be dealt with under different resources. Possible arrangements to either synchronise these or formulate alternative ways of dealing with the content may have to be evolved.

However, the actual integration of all these resources to constitute a system of instruction will have to be evolved. The efforts that can be made in this direction are discussed in what is described as the third phase.

Research efforts related to integrating appropriate resources of known potential identified under the previous phase, for providing experiences to fulfil the set instructional objectives would constitute the third phase. This would amount to visualizing in correspondence with instructional objectives, a set of experiences that can be effectively provided by the suitable resources available to form an integrated instructional system. As the objectives for various levels of education will differ, it would be necessary to evolve instructional systems for these levels separately. The integrated instructional system would mean the organization of logically sequenced experiences. The effectiveness of the system would be seen in terms of its contribution to the realization of the whole set of objectives, and the feasibility of implementing such a reorganized system of education effectively. Additionally, the system should be valued in terms of certain other criteria. One, the possibilities the evolved system throws up in effecting the better organization of other educational programmes, viz., health, education, family welfare, agriculture extension, adult education, etc., which are generally viewed under the category of non-formal education; and two, the influence of the system on other developmental aspects in the community like social progress, and indices of economic development.

Execution of the instructional process in this phased manner would lead to a comprehensive arrangement of all the instructional activities to be carried out at each level. It may however, be mentioned here that, although there would be differences in the nature of instructional activities and their arrangement from level to level, basically, the approach to the organization of instruction will be the same in terms of selection of experiences, ensuring adequate linkage between education and other aspects of development, creating and maintaining the liaison between educational institutions and other developmental agencies in the community, and implementing these experiences in an integrated manner to see the whole developmental process as a comprehensive one. This would, in effect, amount to channelizing developmental efforts through the process of education for immediate as well as long range goals of the society. Thus, research efforts under this phase would lead to bui-

lding a model of evolving and implementing an instructional system for a village. As the environmental conditions, resource position, developmental stage already reached, capacity for further development, etc., may differ from village to village in different clusters, there would be a need to conduct such intervention studies in selected few villages with known differences with respect to the dimensions mentioned above. Through these studies, models suitable for different clusters of villages would be evolved. Simultaneously, there may be a need to systematically examine the differences and similarities among the models vis-a-vis the differences and similarities in the villages for which these have been evolved. Though the organization of educational system in an integrated manner to arrive at effective models is discussed with an illustration from rural environment, there is a need and scope to conduct similar studies in urban, industrial and other special settings. Finally, it may be possible to arrive at a general model of the instructional system along with specific variations to be made on fairly known lines to suit the instructional efforts to the community life and its development.

The intervention studies on the lines indicated will have certain organizational implications. First, the question may arise regarding the formation of the research team for such studies. The team should comprise practising teachers, community leaders, personnel from the departments engaged in developmental work at the village level and an adequate number of researchers. Researchers included in the team should possess not only the required specialization in instructional content and other aspects of the educative process but a positive attitude towards working with the community under study as well as their way of life. Second, effective implementation of these studies would require continuous interaction among team members. For this purpose, there should be a few members who take greater initiative for interaction and coordination of team efforts. While the model is being evolved the responsibility of taking such initiative might be with the researchers who will work in very close association with teachers in the team. Teachers' involvement in the coordination work would be essential for differentiating teachers' role in clearer terms when the evolved model is to be implemented and later institutionalized. Third, apart from identifying various instructional inputs and planning out their placement in the overall instructional system, these interactional sessions would have another important function, namely, to develop among the team members, especially those who are not directly related to the instructional system, conviction in and a positive attitude towards the proposed way of looking at instruction linked with other aspects of development in the community. Fourth, with regard to model evolvement through these intervention studies, another significant point that may be considered is that of the feasibility of replicating these models for wider implementation. To ensure this, it would be necessary to carry out these studies with financial resources which may not be disproportionately high in comparison with what could be due to such villages through various developmental programmes already in vogue. With the clearer demonstration of the feasibility of linking educational efforts with other aspects of development within the limits of the financial resources that the community can afford, there would be an overall acceptability of the model on the part of the community at large, and it would have sufficient scope for smoother implementation in a variety of rural situations. Lastly, the effective implementation of the evolved model will require the teacher to play a very different role of coordinating the community resources for organizing instruction. This would have direct implications for the teacher preparation programmes. The main emphasis in these programmes will have to be on orienting the teachers in actual situations where the models have been evolved and are in operation. The orientation should also provide for a broader perspective of education as a process to be carried out under formal and non-formal settings in close linkage with other developmental efforts made in the community.

The foregoing discussion on the interventional studies lays emphasis on evolving an instructional model around the formal system of education while at the same time, incorporating programmes of non-formal education into it. In fact, various programmes under the systems of formal and non-formal education will have to be organized in such a way that they supplement each other and contribute jointly towards individual development and social progress. This can be achieved if non-formal system is systematically evolved and integrated with the formal system of education. It may, therefore, be worthwhile to discuss a few considerations for providing proper perspective to the organization of the programmes under non-formal system of education. Effective implementation of these programmes will require systematic research efforts to formulate and organize these in such a way that the different aspects of development are aimed at. The section to follow discusses the perspective that may have to be

kept for organizing research efforts in this direction.

The programmes of non-formal system of education are expected to cater to the developmental needs of a variety of clientele drawn from different age groups, occupations, educational and social backgrounds, etc. This system, thus, has to satisfy the differential needs of such a population. As these people, by and large, may not find it convenient to attend the programmes under this system on a full-time basis, there may be a necessity for organizing these programmes in a very flexible manner in terms of schedule of instructional work, duration of the programme, techniques of presentation, etc. Effective evolvement of these programmes would necessitate that the procedural steps in this regard are research based. Initially, for formulating the differential courses and organizing them in a flexible manner, it will be necessary to systematically survey the developmental needs of the people in the community, and characterstics related to various aspects of their professional and personal life. Through these surveys, it will have to be ascertained as to what people in the community want to do, what they are already capable of doing, their potential for further development, the motivational aspects of their personality, etc. Apart from these population attributes, the survey should yield information regarding demographic characteristics, human and physical resources available in the community, location of the community with respect to its nearness to urban areas and its transport facilities, etc. Additionally, it would be worthwhile to study through these surveys the socio-economic and cultural life of the community in general, as well as for different sections within, if there are variations. As these bench mark data will be utilized for deciding the nature of programmes and also for selecting the suitable places for field testing, the survey will have to be a comprehensive one as indicated with wide coverage of environmental conditions.

Once the differential needs are identified and other community characteristics known, the next step would be to carry out efforts in terms of identification of specific courses, detailing suitable content matter and organizing appropriate ways of presentation. It is quite expected that each course will cater to certain educational needs of a very heterogeneous clientele. The course specification would be followed by identifying and logically sequencing suitable content points for each course. Appropriate ways of organizing instructional activities under these will have to be devised, so that the specified objectives are achieved. As the clientele of these courses will be heterogeneous in respect of different characteristics, there would be a need to evolve alternative techniques and activities of instruction. Therefore, for each course a large number of methods and media like self-learning material, programmes through mass media, practical work to be done under a variety of situations, interaction sessions, library work, other self study methods, etc., are to be devised. It may be mentioned here that under any instructional activity there may be several modes of presentation to suit the clientele differences. In consideration to these differences, it may be possible to select suitable methods and media and logically sequence them to form an instructional strategy to be followed by the sub-group in the target clientele for the attainment of the objectives set. The flexibility in each course may also be possible in terms of multiple entry and terminal points. Designing courses in this manner will accommodate the varying backgrounds and the differential developmental needs representing levels of excellence in a specific course.

The formulated instructional strategies for specific courses would then, have to be tried out on samples from the target populations to study their effectiveness and feasibility. The effectiveness of each strategy will have to be seen in terms of the attainment of set objectives pertaining to the developmental needs of the target population. Additionally, another index of the effectiveness of such courses would be their influence on the recipients to gain a different outlook towards their professional development and self–initiative to make efforts to grow further. In case of those courses which provide for multiple entry and terminal points, the attainment of objectives may have to be studied for each point separately for the concerned target sub-populations. The feasibility of implementing such courses for wider use should be examined with reference to the financial and other resource implications and also the extent to which the clientele with varied backgrounds and occupational engagements can avail themselves to utilize these courses effectively. Research efforts to be made to study effectiveness and feasibility of various courses under the system of non-formal education on the lines indicated above will require careful selection of the samples of clientele from concerned target populations, running the courses for them according to the formulated procedures and studying different aspects of instruction and the organizational arrangements. Evidences regarding these aspects may have to be obtained in

a very systematic and comprehensive manner on a continual basis through the application of techniques and tools like observation, interviews, rating scales, anecdotal records, criterion tests and other suitable measures of learning outcomes, etc., on individual respondents as well as group situations. As a substantial portion of the evidences to be collected will have to be obtained from the respondents through self-reporting techniques, it would be necessary to maintain a very close and informal relationship with respondents to get valid information. These evidences when systematically analysed and meaningfully connected will lead to effecting modifications so as to refine the course and evolve effective implementation for wider use.

Even after the evolved programmes are field implemented, there would be a need to cross validate these against the criterion of reactions of those who have already studied these courses and experienced for themselves, later, the way in which they have been benefitted and affected by such courses. Such a need can be seen if one considers that initially the relevance of these courses would be judged mainly through the perceptions of future clientele and course designers, which might change when actual experience is gained. The cross validation of the sort mentioned, therefore, would strengthen the process of refining the courses further. Moreover, this would be necessary because the developmental needs of the clientele would be changing with the passage of time and with their own development. These validity procedures will, thus, provide an inbuilt mechanism in each course for subjecting it to continuous evaluation leading to necessary modifications and also generating information regarding the changed developmental needs and consequently showing the scope for designing new courses.

Research efforts indicated for evolving instructional programmes under the system of non-formal education require a reorganized scheme of resource utilization in the community. This is true for the reason that various programmes of non-formal education, viz., adult education, health and family welfare, agriculture extension, leisure activities, etc., are carried out by different developmental agencies—government and voluntary. Organization of these programmes cannot, however, be seen in an isolated manner as these have to supplement the developmental efforts made through the formal system. The process of evolving these programmes should, therefore, be carried out in close relation to those programmes under the formal system of education. It is, thus, a necessity that the programmes under both the systems be evolved simultaneously. In order to achieve this according to the research perspectives discussed earlier for these two systems, it may be organizationally and academically desirable to evolve these systems in a synchronized manner under the same situations. When such a synchronised effort is made, it would lead to a comprehensive system of education incorporating both formal and non-formal programmes of education with the utilization of resources in the educational institutions and other developmental agencies in the community in an integrated manner.

Theorotical Knowledge pertinent to the Educative process

The preceding sections deal with educational reseach mainly as aiming at the evolvement of suitable systems of instruction for different levels and forms of education in such a way that the whole instructional process is directed towards the overall individual development and social progress. Through such efforts, structures representing operational aspects of the educative process will be concretised. As stated earlier, these structures will base themselves upon the premises provided by certain theoretical aspects of knowledge related to individual behaviour and societal dynamics. Therefore, there is a need to subject these theoretical aspects of knowledge to an indepth and systematic examination for processing them in such a way that new insights for their relevance and application to the instructional process are gained. However, in all such investigations, it may not be possible to emphasise the relevance and application for each element that is studied under these aspects; many a time, the purpose of such studies would be to increase the theoretical understanding about individual behaviour and social processes. Apart from gaining clearer understanding about these, they may further generate relevance and application at a later date. Efforts related to this process of looking into the theoretical aspects would serve as another perspective of research in education. In the section to follow a few considerations are discussed to highlight this perspective.

Through the process of education, attempts are made to bring about certain behavioural changes in the individuals with regard to cognitive, psychomotor and affect developments by providing a controlled environment. Effecting these changes efficiently would require systematic understanding of the growth and development processes during stages of human life.

A popular trend in studies on this theme has been to arrive at certain generalizations regarding different attributes related to these processes for various age-levels and different cultural backgrounds. While the contribution of these studies to the understanding of human behaviour cannot be de-emphasized, there is a need to further investigate into certain attributes of human behaviour which are conditioned by the environmental factors. Since these factors, varied in nature, may have differential effects on certain growth and development attributes, it would be necessary to bring these factors operating in different environments under investigation to arrive at a clearer understanding of the behaviour of individuals in terms of the influences of these factors. The need for such investigations is further strengthened in the light of the fact that education is being extended to wider sections of the community where these factors may obtain in varying degrees, and, this may necessitate suitable adjustments in the educational programmes. In more concrete terms, it would mean studying the development of different attributes, viz., concept formation, scientific inquiry, thinking and reasoning processes, attitudes and values, etc., in individuals under different environmental conditions related to various aspects of socio-economic and cultural life. Apart from these environmental variables, there would be certain personality variables of individuals, viz., motivation to learn, intelligence, etc., which would affect the development of these attributes. These variables through their interplay, to different degrees, in different groups will provide unique situations when viewed from the point of instruction. Any attempt to arrive at broader generalizations for such situations is likely to blur these differences which would prevent the process of differentiating in clearer terms what is suitable to each group educationally. It is, therefore, necessary to make research efforts to identify the uniqueness of these situations and treat them distinctly for evolving differential programmes of education for the development envisaged.

While studying the characteristics of the individuals in relation to the environmental factors, it may be observed that these factors are numerous and interrelated. Some of these factors are caste, religion, occupation, economic status, educational level, social prestige and language. According to each of such factors, there would be groups in the community. Obviously, there would be overlaps among these groups. At the same time, there would be interactions among the individuals of these groups. Due to these overlaps and the interrelated nature of the fac-

tors and the interactions among the individuals, a very complex climate will be generated. This complex climate would have a significant influence on the development of the personality attributes of an individual. Further, this development would be determined by certain basic abilities like intelligence. Thus, the personality make-up of an individual will be decided by the complex interaction between the climate created by the environmental factors and the basic abilities he possesses. Through this process, each individual attains uniqueness in many respects. For a clearer understanding of the phenomena related to the generation of a complex climate in the societal system, the process of its interaction with the basic abilities, and the attainment of uniqueness by an individual, it may be necessary to carry out systematic and intensive research. Understanding of these phenomena would facilitate the designing of suitable instructional programmes in a more flexible manner to suit group differences. It may be mentioned here that these groups may have to be identified on the basis of certain broad similarities among the individuals in spite of their being unique. However, apart from ensuring flexibility to suit the differences among the broad groups, an effective instructional system should formulate certain activities and other instructional tasks to accommodate even the subtle differences that may be there among the individuals within the group. The outcomes of research endeavour with this perspective would lead to acquiring knowledge about individual behaviour and societal dynamics which would be utilized to evolve suitable models and strategies for different forms and levels of education as discussed in earlier sections.

Value Inculcation in an Evolving Society

The process of individual development is greatly influenced by the value system that may prevail in the community. The value system is inherently present in any community, which would evolve through time based on what it cherished in the past and projecting what it aspires to create in future. At each point in time, therefore, the value system is subjected to organized influences for evolving it further in the directions aimed at. In a concrete way, the values are transmitted from one generation to the following through informal influences of the family and the community. At the same time, organized influences are provided by the formal and non-formal forms of education for the inculcation of values decided upon to be cherished. It may be observed that there may be a lag between the organized influences of education and the informal influences of the family and

the community. Moreover, at times, these two sets of influences are likely to be contradictory. Any individual, especially at his formative stage, will, therefore, face the dilemma of deciding for himself what should be valued. The process of value inculcation, thus, is a complex one. Evolving a desired value system would require that the values to be inculcated are discerned, the influences that may be needed for their inculcation are provided, and the influences that might thwart the process of inculcating the cherished values are deemphasised gradually and eliminated finally. These requirements can be met effectively through research efforts carefully planned and executed with such a view that the process of achieving the goals of national development are ensured. A few considerations in this regard are discussed in what follows.

In a country like India where there are diversities with reference to religious faith and practices and other cultural aspects of life, the accepted values may differ from one group to another. There are certain values which are not equally acceptable to and practised by all groups. This is evident from certain practices regarding modes of worshipping, feeling towards the members of one's own community and those in other communities, etc. However, certain values like honesty, cooperation, and responsibility are very basic in nature and have equal acceptance in all religious and cultural groups. From the point of view of national development, however, it would be necessary to inculcate those values which may not be having enough emphasis in certain religious and cultural groups, in addition to those which may be basic and equally acceptable in all groups. National development will have the perspective of cultural heritage as well as the far reaching value requirements of the society to be created. Therefore, the identification of values will have to be done through a careful analysis of the prevalent practices at different points of time, and, critically studying the philosophies of various Indian thinkers who might have reflected upon life as related to its social development. This would help visualising the value requirement of the present society to enable it to evolve towards the desired direction. Further, it would lead to identifying suitable learning experiences for the inculcation of these values and integrating them into the total instructional process in an effective manner.

Educational Practices in the Retrospect

It may be recalled from what has been discussed in a few earlier sections, that the instructional sys-

tem has to be evolved in close consideration to other aspects of development, viz., economic, social, political, etc. While evolving such a system, there would be a need to base it on certain theoretical premises related to different aspects of life. From this point of view, one significant resource for arriving at these premises would be what is available in terms of past experiences. The educational systems in the past should be examined critically for their organization and their influence on other aspects of development. At the same time, it may be worthwhile to scrutinize the system of education as it existed during different periods, in all its details to arrive at the understanding of how other subsystems in the society influenced the functioning of this system, and, thus, shaped it from time to time. This scrutiny would lead to seeing the origin of differnt systems of education, the conditions in other subsystems then obtained which brought about the origin, and the influence the evolved system exerted on other subsystems, and, in turn, got itself further influenced, which might have made a case for further change in the system of education. Research endeavour in this domain would provide a clearer perspective of mutual influence as exerted by the educational system on one hand, and other subsystems in the society, on the other, thus, leading to a clearer understanding as to how the educational system would grow in the midst of influences from other subsystems. Further, it may also be possible through these efforts to make certain inferential statements about the influence of the educational system on other subsystems under given conditions, leading to certain developments.

Evaluation in Education

In a few preceding sections, research endeavour related to the evolvement of different educational systems in the context of individual development and social progress has been discussed. Individual development would have to be seen in a comprehensive manner to include different aspects of an individual's learning. These aspects may be grouped into two categories, viz., mastery outcomes and developmental outcomes. Mastery outcomes would include objectives related to certain basic knowledge, skills, etc., which can be specified in terms of behavioural outcomes and can be expected to be achieved to mastery level through suitable learning arrangements. Developmental outcomes of individual learning will relate to those objectives which cannot be subjected to quantification as to fix an expected mastery level. Such objectives will include affect attributes

like cooperation, tolerance, initiative, responsibility, objectivity, attitudes, interests, appreciations, etc., and higher cognitive abilities, viz., divergent thinking, analytical, synthetic and evaluative abilities, etc., These are complex in nature and, unlike the mastery outcomes, get developed only over a long period of instruction. To evaluate these two types of outcomes developed in learners would require scientific measures to be devised for their assessment. For mastery learning outcomes, it would be quite appropriate to follow the approach of criterion – referenced testing. The criteria fixed for this testing would be in terms of expected behavioural outcomes formulated for each content unit whereas, in the case of developmental outcomes the criteria for expected behaviour cannot be concretised in a similar way and related to any specific and fixed content. These outcomes would, therefore, be evaluated by seeing in qualitative terms the manifestation of the related traits in the individual's behaviour at successive intervals. The reference for judging his progress, therefore, would be the individual's own attainment in this regard at preceding points of time. As these outcomes would be qualitative in nature, measures for their assessment will have to be such that they would accommodate manifestations of the traits related to such outcomes. Techniques like individualized observations, anecdotal records, self-reports, etc., would, therefore, be better suited for the purpose. Evidences about the individual's behaviour manifestations collected through these techniques, when content analysed, meaningfully connected and interpreted with reference to his earlier behaviour manifestations, will lead to assessing him for these outcomes. It may, however, be mentioned here that use of such techniques emphasises the need to assess a learner's progress in an individualized manner, and this process will be duly supplemented by the use of available standardised tools based on testing techniques, or even devised ones wherever the observation and self–reporting techniques may not be enough for making the evaluation comprehensive.

Although evaluation of individual development would aim at judging the effectiveness and efficiency of the instructional system, another significant purpose of evaluation would be to help the individual learn better. This would be achieved by providing individual learners with necessary feedback about various aspects of their development. This process of integrating instruction and evaluation would be strengthened if scientifically developed measures of learning outcomes are made available even to the learners for self-evaluation while they are receiving instruc-

tion. This would help in making instruction more learner-oriented. Research efforts related to the preparation of scientific tools for assessing individual progress may have to be systematically organized, and the set of measures thus developed should be comprehensive to cover different aspects of individual learning. These measures would form what may be termed an Evaluation Bank.

Increasing Objectivity in Decision-making

What has been discussed so far highlights research efforts aiming at evolving effective educational systems which can respond adequately to the needs of individual development and social progress for different target populations. These educational systems are essential means of attaining the goals of development for all sections of the society. However, as the socio-economic conditions obtain in the Indian society, it is a matter of common knowledge that individuals in many sections may not be in a position to avail themselves of the educational opportunities provided through the system. In order to ensure individual development and social progress to the maximum extent it is imperative to see that no handicaps exist in benefitting from educational opportunities provided. Ensuring the accessibility of individuals in all sections of society to educational opportunities, can be helped through research efforts to identify the various handicaps, and provide measures to overcome these in the system. Identification of these handicaps would have to be carried out through systematic studies of social, economic and educational conditions of various groups of individuals in different parts of the country, and, simultaneously, locating the nature of deprivation and its extent. Such studies would lead to proper identification of individuals who may be deprived in different ways, and would merit considerations for special measures. A few such measures are in existence already. For example, certain courses of studies are provided through correspondence with a view to extending educational opportunities to those who are socially and economically deprived. Similarly, certain financial measures in terms of scholarships, free studentships, stipend, etc., and certain relaxations in admission requirements for certain sections of the society are in vogue. These measures are expected to help overcome the handicaps, thus, making the system more accessible to wider sections of the society. Such facilities emanate from certain considerations related to the socio-economic conditions of individuals, and, are aimed at ensuring individual development. When these measures have remained opera-

tive for sometime, it would be worthwhile to examine objectively whether the beneficiaries are those who were initially thought of. Further, outcomes of such studies would lead to the refinement of procedures for identifying the deprivations, reformulations of facilities for more effective utilization, and also, if necessary, institution of certain additional measures.

There would be quite a number of issues like the ones discussed which may have to be initially solved by making certain judgments in accordance with the developmental requirements of the individual and the society. These might relate to language policy, educational pattern, vocationalization, admission policies, management of educational institutions, role of governmental and voluntary agencies in education, state responsibility of education, academics and national policy decisions, organization of research and its contribution to development, educational system vis-a-vis different national ideologies, etc. In a developing country like India, objective evidences about the suitability and feasibility of various alternatives for resolving these issues may not be available in a sufficient measure. Therefore, a good deal of judgment based on common sense and related experiences will have to be made from time to time. The contribution of educational research lies in systematically collecting these experiences, processing them analytically to turn them into objective evidences which can be utilized by decision-makers for making sounder judgment. Further, when the programmes are operative, these should be continually studied in a systematic manner to evaluate their effectiveness against the principles of social and economic aspects on which they were initially based, and for feasibility of their management and implementation under the given conditions. Collection of evidences and evaluation of programmes should be so objectively and systematically done that they get the respectability of being considered by the decision makers. This would necessitate making research on these issues socially relevant, and the methodology adopted for carrying it out utilize modern scientific techniques. It is through this process of feeding objectivity into decision-making that educational research can help the realization of the goals of national development.

Methodological Issues

Discussions pertaining to the perspective of educational research as related to development bring within their scope a variety of methodological problems that have to be tackled. Some of these problems have been broadly indicated under relevant sections while discussing research efforts of varied nature. However,

an attempt is made here to focus a few such issues which will have specific methodological implications for designing these studies. Certain studies may be of a very theoretical nature which may scrutinize systematically as to what should be valued and perceived in an organized manner for individual development and social progress. Another set of studies aim at concretising the organization of education by identifying effective instructional inputs and other processes needed to attain desired learning outcomes, and, also determining their placement in the instructional system. Yet, another category of researches would aim at suitably incorporating these identified inputs and processes into different instructional strategies and models. Certain other studies may be of the type which would require efforts that may be a combination of theoretical approach based on argumentative scrutiny in the light of what is available, and also, with due support, wherever necessary, from empiricism, to arrive at sounder judgments for solving problems of education. While all these types of studies in educational research are executed, there are certain methodological issues that may confront the researchers, which would have to be solved to make research endeavour more scientific and relevant to problems in the field of education. A few such issues are discussed in the following.

In educational research as in any other field, there has been an attempt to arrive at generalizations regarding certain relationships. To arrive at such generalizations the usual methodology is to go for large samples including a variety of situations in educational settings. This approach would be suitable for certain studies which may seek to establish certain basic relationships among learner characteristics, learning outcomes and other conditions in the teaching-learning situations. The essential feature of this approach is to make controlled observations, as it is done in laboratory-type experimentations, aiming at discerning the effects of certain selected variables on certain others under specified conditions, keeping all other factors non-operative or neutralizing their effect. Studies of this sort are quite significant as they increase the understanding of certain basic relationships in the teaching-learning process. These relationships would form the basis for selecting suitable inputs and processes to be incorporated into the instruction for various levels. However, the application of these selected inputs and processes to actual teaching-learning situations, may make their operations substantially different as the situations would become complex due to the interplay of innumerable variables. This comple-

xity of the situation is due to the fact that certain controls which were exercised under the laboratory-type experimentation, are no longer operative in actual teaching–learning situations. The interplay among numerous organismic and environmental variables would make each teaching– learning situation acquire a great deal of uniqueness. Proper understanding of these situations would demand employing a methodology to treat each unique teaching–learning situation, or a few very similar ones, separately, and bring them under investigation in an intensive manner, for studying the complex dynamics presented by a variety of variables. Such studies would warrant limited generalizations to the situations that may be considered very close to those studied. While it would be necessary to study different teaching–learning situations operating under a variety of conditions, the primary aim of these would not be to seek generalizations across these situations but, to arrive at a reasoned account of all that obtains in each of the situations. This is particularly significant in the light of the methodological consideration that if attempt is made for wider generalizations across the situations, it would be only on the basis of elements common to the interplay in different situations. And, since these interplays among variables are unique in many ways, such communalities may be very meagre and would, thus, prevent meaningful generalizations. However, limited generalizations made for very similar situations should not be taken to mean that these have no significance for application. In fact, these limited generalizations would be of substantial assistance in concretising the instructional systems suited to each of these situations. Further, in the long range when a number of situations representing different sets of conditions are intensively studied, perhaps, a better scope would be provided by the outcomes of these studies for attempting wider generalizations; this would have to be done through a very analytical study of the processes that have been brought out as being operative in individual studies. Such an approach where the complex interplays as obtained in individual teaching–learning situations are studied in an intensive manner, would require that the studies be designed in such a way that a variety of variables and their interplay can be subjected to systematic observations and their effects can be discerned.

While the isolation of effects due to different factors in a teaching–learning situation is quite possible under laboratory-type experimentation, it presents serious difficulties when the actual teaching–learning situation is brought under investigation. If the researcher tries to accomplish this isolation of factors through sophistication in research by way of exercising controls, the very process of controlling acts as an influencing factor, the contribution of which cannot be easily studied. Moreover, the extreme controls would make the teaching–learning situation different from being real, and thus, the validity of the findings would be jeopardised. However, relaxation in adequate controls upon the teaching–learning situation would make it too vague to be reproduced; thus, the results of such studies would not be verifiable. Any meaningful research into the process of teaching–learning should aim at achieving something more than what could be attained through laboratory-type experimentations. This would specifically mean designing studies in such a way that the results of studies of the laboratory type are utilized in the actual teaching–learning situations to evolve effective and efficient arrangements to systematise instruction aiming at the fulfilment of certain predetermined objectives. Designing studies in this manner would require striking a balance between two demands, viz., validity of results by maintaining reality associated with the instructional process, and application of research through the evolvement of reproducible instructional strategies.

Appropriate methodology to arrive at such valid outcomes of research in real teaching–learning situations would be to examine comprehensively the various instructional inputs and processes as they operate in an integrated manner. Comprehensive scrutiny of these situations will demand that sufficient information about the interplay of different variables is obtained. This information may not be available in a restricted time period, unlike in controlled conditions wherein only a few variables are allowed to operate. And, therefore, these studies have to be of long range in terms of content coverage, occurrence of behaviours on the part of learners and teachers, and the operation of other environmental conditions. This long range approach will enable the researcher to search for needed evidence through systematic observations. The sample size of these observations spread over a longer time duration will provide adequate information about various aspects of the situation. And, if these observations are systematically made, properly analysed, and meaningfully connected, they would provide evidences which may have sufficient validity to explain teaching–learning process. The researcher, thus, would have found certain relationships in operation under real life situations without losing the scientific precision therein.

With regard to researches into real teaching-learning situations, there is another constraint which should be considered. The educational system is integrally related to people's views, beliefs, opinions, attitude and value system, which get disturbed when new inputs and other practices are incorporated into the instructional process. Any new input will require pupils, teachers, and all others concerned to see things in new perspective, to think in new directions; this challenge people cannot readily accept probably because they cannot visualize the perspective itself, or they are not convinced of the effectiveness of the new modes of thinking and the practices put forth. If there is lack of acceptance or lack of faith in the effectiveness of new practices, these will fail to receive the involvement and the commitment of the people essentially required for its successful application. This social phenomenon has methodological implication for designing and implementing research endeavour. It would call for adequate social sensitivity on the part of the researcher to understand and appreciate its significance in carrying out his research in a meaningful way. This consideration would lead to designing studies in such a way that the effectiveness of new instructional inputs is established through experimentation in real-life situations over a fairly long period of time. And, also that the inputs evolved through research are feasible to be implemented within the limits set by human and material resources available. If these two aspects, effectiveness and feasibility, are reflected in research, it would acquire the added significance of preparing people gradually for accepting the research outcomes which would make the process of change in education faster.

Organisntional Implications

The required research potential in terms or personnel and other facilities for the implementation of educational research with the perspective of development as discussed in this chapter, appears to exist to an adequate measure in this country. However, organisation of educational research in the manner indicated would imply that research endeavours cannot be visualised in terms of isolated attempts but as concerted efforts carried out in an integrated fashion for selected communities with varying environmental conditions. Execution of educational research, thus, would have certain organisational implications. An attempt is made in this section to consider a few of these implications which would contribute to effective organisation of the same.

Execution of core studies and other related investigations to bring total educational settings under comprehensive examination would make the undertaking very huge in its scope, and complex in terms of varied aspects to be studied. Effective conduct of these studies would require a team of persons to be engaged in this pursuit in a sustained manner. Constitution of the team will be governed by certain considerations such as specialisation in various aspects of the study, personality attributes needed for successful working in a team, knowledge of community life and positive attitude towards working with community. Initially, such teams may have to be formed by selecting persons who have evinced these attributes and possess proven abilities. At the same time, it would be necessary that the team is led by a person who has not only extra-ordinarily high abilities to think across disciplines and arrive at a clearer understanding of various viewpoints, but also remarkably high ability to steer the team of persons with various specialisations. The team will carry out research activities at various stages of planning, implementation and evaluation of the projects. At planning stage, it would be clearly specifying the work to be undertaken in terms of concrete tasks and demarcating the scope of work to be done by various members of the team. As the kind of work under the proposed studies would be such that several personnel from various disciplines, developmental agencies and other sections of the community would have to be involved, there would be a need to seek cooperation in a specific manner. While planning these concrete ways of securing cooperation, deciding about the procurement of material facilities, and their management may have to be worked out beforehand. It may be observed in this context that when several personnel are involved, it may not be possible to ensure beyond certain limits, the actual execution, and therefore, certain alternatives for meeting the situation may have to be kept in mind. This would speak of what kind of work is specifically to be done by individual members of the team. Apart from executing the actual work at selected settings, it would be necessary to maintain and promote a close collaboration among the team members so that the situations under study are continuously examined. This close collaboration through periodic reviews and interactions is necessary for another reason that for such a management of research, there may not be readymade models available. These are to be evolved through deliberate efforts which may have to be made for determining the extent to which each member and the department to which he belongs could make contributions as well as share responsibilities. This would, perhaps, be the way to

tread the untrodden and unforeseen path for which interaction among the members would be the crux. Also, evaluation of the situation would have to be made continually to examine as to how each aspect of the work is functioning; where exactly it needs to be improved or modified; how cooperation could better be promoted; how the responsibility and specification of the tasks for each participant in the process could be defined more concretely. Apart from this formative evaluation, there would be a final evaluation which would be in terms of the actual outcomes and the overall feasibility of the approach. For both types of evaluation it is needless to emphasise that it would be the team as a whole which can function and decide the course that research can take to ensure the effectiveness of the approach or the system evolved.

The teams will undertake educational studies in selected settings with varying environmental conditions. Obviously, these settings will differ with respect to language, economic development, educational status, and socio-cultural aspects, and would have nationwide coverage. In such a situation, it may not be organisationally feasible to locate the team at any one central institution. Instead, these teams would have to be at different institutions located in various parts of the country. The proximity of such institutions to the settings under study would be needed for the academic reason that a continuous contact with these settings will be required by way of studying various organismic and environmental variables operating in these settings, selecting and providing appropriate instructional inputs sequenced effectively, and evaluating the effect of these inputs on individual development and overall community development in these settings on a continual basis. For this purpose, selected centres which may be attached to universities, or to existing research institutions in various parts of the country would have to be strengthened. These centres may have to be equipped with additional staff having requisite specialisations indicated earlier, and also with necessary facilities for carrying out research in a manner discussed according to the perspective presented in this chapter. As this perspective demands studying the settings in a comprehensive manner, personnel at the settings, viz., practising teachers and other officials from the department of education, persons occupied in various developmental agencies, community leaders, etc., would also constitute the team.

For effective functioning of the team, it would be necessary that the members possess adequate knowledge about the various aspects of the functioning of a team and personality attributes required for smooth and efficient involvement in it. Moreover, taking education in a comprehensive manner on a long range basis and considering the place of education in the realm of disciplines, would require that the members in the team have the ability to perceive educational problems from a wider perspective. This would mean that besides specialised knowledge in their respective disciplines, the members should also have a bent of mind to scrutinise such problems in an integrated way. In order to develop teams with research personnel having the abilities and attributes mentioned above, necessary arrangements would have to be made to organise suitable training programmes. These programmes would aim at giving theoretical knowledge and practical experience related to working in a team to deal with the problems of education in their varied aspects. Under these programmes, special emphasis may have to be given to experiences like discussions, seminars, group projects and association with on-going projects in real settings of the community. For providing experiences on these lines, suitable places would be those centres identified for locating the teams of researchers. Teachers and researchers from other universities and research institutions could come to these places and receive such training. Young researchers who are interested in pursuing research leading to a degree could also be attracted to these centres where they may engage in such work. For this category, it is of special significance that such a training is provided to them during the formative stage of their research career. The effectiveness of the training would require that a group of researchers of optimum size is made available at these centres. Moreover, this group should be constituted of personnel from disciplines that are cognate to education. Such an optimum group of persons drawn from various disciplines would provide scope for meaningful interactions on relevant problems of education from different view points; this would have added training value. The optimum number of personnel for these programmes could be ensured by instituting fellowships, assistantships, etc., in these centres to attract scholars possessing required basic abilities and those who have evinced other attributes pertinent for research work of the type discussed. Further, inclusion of scholars from related disciplines could be made sure of by earmarking a few of these awards for them and also creating opportunities to work later in institutions of educational research.

Effective organisation of educational research by these centres at the selected settings would demand carrying out these efforts in a sustained manner over a fairly long period of time. This is needed because proper understanding of the aspects related to the educational process is possible only when it is carried out in a long range manner. And, further, since the systems should be evolving continuously, it is necessary that continuity in research efforts is maintained and research acumen is increased. Only when this is ensured, these places can be developed as effective training centres which would be providing research personnel to man various positions throughout the country, and thereby, on the whole, develop rich potential. At the same time, these centres shall have to develop proper channels of communication among them and other personnel of research in this country. This could be achieved by holding periodic conferences to discuss the activities of these centres, and also through other media like research journals, bulletins and other publications.

CONCLUSION

The perspective of educational research as discussed in this paper attempts to view the educational system as a means to bring about certain developments in different aspects of the individual's life and society. What has been highlighted in this context is the complex phenomenon of the influence of the educational system on other societal systems, and, in turn, their influences on education. It is because of this complexity of relationships that research efforts have to be so organized as to lead to the clearer understanding of these influences, and also, to visualize more concretely the ways through which these influences could suitably be manipulated for attaining certain goals of future society. While organizing

research for the evolution of educational systems, therefore, attempts will have to be made not only to differentiate effective educational components to be incorporated into, but, also to identify clearly the concomitant changes that have to be made in other societal systems for the effective functioning of the evolved educational system. This goal of educational research will demand continual research efforts to see how influences are exerted by different systems on each other, evolvement of educational systems based on the understanding of these influences, and seeing how with the introduction of new educational systems, the pattern of these mutual influences get changed. Thus, the evolution of more and more suitable systems of education will be made a research based process.

Taking educational research in this perspective would mean that it is a broad-based activity which will take into its fold all other aspects of life. Therefore, the knowledge of these aspects of life will have to be brought into and meaningfully utilized in educational research. However, it may be mentioned that this necessity of an interdisciplinary approach to education would mean carrying out studies in such a way that educational problems will be at focus, and their solutions will be arrived at with due consideration to the knowledge in related disciplines. Primarily, it will be educational research as such which will have to concretise itself in such a way that the education component in the context of the overall societal system is differentiated clearly, identified properly, and developed sufficiently with whatever methods and techniques may be available or may have to be devised. This will be the unique concern of educational research in which other disciplines would provide only a supportive role to facilitate this process.