

Secondary Education

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INTRODUCTION

The need for improved levels of school participation and achievement is now globally accepted. The key role of schools in materialising this need is reflected in a variety of efforts to transform the nature and functions of education at various levels/stages of school education in keeping with the cherished values and aspirations of the people for whom it is meant. In India, the constitutional commitment to the Universalisation of Elementary Education (UEE) and the Delhi Declaration in respect of Education for All (EFA), are being hailed as very positive steps for ensuring the country's overall development. These are indeed necessary for entering the twenty-first century with a high degree of optimism and a determined resolve to march forward on the path of progress. However, measures like the UEE and EFA are bound to have certain implications, the most immediate ones being concerned with and related to the role of Research and Development (R&D) in secondary education.

For one thing, secondary education is a link between elementary education, on the one hand, and tertiary and higher education, on the other. It is evident that improved enrolment at the elementary stage has led to increased access to secondary schools which, in turn, has influenced demands for tertiary and higher education. Secondary education, thus, is of special importance in the educational ladder inasmuch as its successful completion is a requirement for

admission into institutions of higher education and, at the same time, being a terminal stage, it caters to the needs of those who enter the world of work. Again, as stressed by the National Policy on Education, 1986, updated in 1992 "Secondary education begins to expose students to the differentiated roles of science, the humanities and social sciences. This is also an appropriate stage to provide children with a sense of history and national perspective and give them opportunities to understand their constitutional duties and rights as citizens."

A major challenge before educational planners, educational administrators, educational researchers, teachers and managers of education, thus, is to devise and organise a system of secondary education which would both widen access to it and simultaneously ensure relevant and quality education. As a matter of fact, making quality education available to all students at the secondary stage is by far the only way to develop their full potential either for pursuing higher studies or seeking gainful employment.

THE NATIONAL AND INTERNATIONAL SCENARIO OF RESEARCH AND DEVELOPMENT IN SECONDARY EDUCATION

Various strategies and approaches are being put forward and alternatives worked out for restructuring and reorganising secondary education all over the world. A good deal of research in secondary education is also aimed

in this direction. In fact, there has been a phenomenal growth in research in education, including secondary education, during the recent decades. Research activity in India, as elsewhere in the world, is being increasingly stepped up in various institutions and research organisations, adding continuously to the number of doctoral and institutional researches. However, the orientation of and types of research studies need to be viewed cautiously so as to identify the trends relevant to reform in respect of secondary education. To begin with, it is imperative that each nation formulates objectives of education based on the philosophy it advocates, and evolves appropriate structures and determines suitable processes within those structures in the overall context of its national development policies. Yet, no country can today afford to ignore the emerging global trends in education. This is especially so in view of the present-day interdependence of nations, never witnessed in the history of mankind before. It is, therefore, desirable that the alternative structures and newly introduced processes currently in vogue abroad are given due consideration while evolving a relevant system catering to the needs of the emerging society in India.

A major global trend, obviously, is the increasing use of modern scientific and communication technology in education. Indian secondary education has to take special note of it. The use of computers, which until recently was found mostly in the developed world, is now influencing almost every sphere of life in India. Computer-aided instruction, therefore, has to be started as far as possible, on the lines of the international models and practices. The other conspicuous global trends which need to be adopted or adapted in India include undifferentiated curricula for the rural-urban population, interdisciplinary approaches to teaching, the systems approach in management, integration of education and work, distance learning/open learning systems, international understanding and world peace, human rights education and value education.

Of the global trends in education, the ones

prevalent in the neighboring countries or those followed in the other developing countries are of special interest and concern to India. The education reform in the Third World countries has given a new orientation to the goals of secondary education which are now being visualised in the context of national development. Evidently, this has implications for linking education to the problems of national and rural development. Again, common trends observed in a number of developing countries reflect a growing concern for vocationalisation of secondary education, democratisation of education, lifelong education, non-formal education, structural changes in education, population education, gender equality, problems related to finance and management and the changing role of the secondary school-teacher. In addition, there is a special emphasis on processes in secondary education, including those related to need-based courses in both the liberal arts and the vocational streams; curriculum planning, including the methodology of teaching and evaluation procedures and educational technology; new approaches in teacher preparation; better health and nutrition; national unity; and international understanding and cooperation. Another common trend in the developing countries which has a direct bearing on the Indian setting is the emphasis on access and equity. Schemes are being developed to provide access to secondary education facilities to the maximum number of people, and especially to those belonging to the backward areas. Again, courses of studies are being restructured with the contents so modified as to suit the new requirements. Alternative patterns of education, both formal as well as non-formal, are being evolved to ensure both maximum enrolment and need-based quality education.

The above trends make it imperative to consider the recent research effort in India so as to find out its impact on the reorganisation and revitalisation of secondary education and to see whether the attempts being made to adopt or adapt the current educational system to the changes in the socio-cultural environment are

really based on scientific studies and carefully evaluated pedagogical experiences. This would also make it possible to find out the research gaps, if any, and suggest future research priorities and discuss their implications for the benefit of those concerned directly or indirectly with the improvement of secondary education in the country.

TRENDS EMERGING FROM RESEARCH ABSTRACTS

In none of the earlier four surveys of research in education, was research in the area of secondary education was dealt with in a separate chapter/section. The position was similar in respect of research in elementary education though in the previous survey, i.e., the Fourth Survey, research in elementary education has been treated as a category by itself. No doubt, research in higher education did find a special place in certain surveys, particularly the Fourth Survey, but it was so in view of its distinct nature and issues and problems which are very different from those of school education. It has so far been assumed, and perhaps rightly so, that most of the areas of research under which educational research is broadly considered, are in fact concerned predominantly with school education. These include, amongst others, curriculum planning, learning and motivation, guidance and counselling, educational technology, educational management, teacher education, teaching and teacher behaviour, measurement and evaluation, language education, social science education, health and physical education, and correlates of achievement. However, the all-round development and the general prosperity in India during the recent decades coupled with the changing educational parameters warrant exclusive coverage of research in secondary education. The implications of universalisation of elementary education, the national pattern of school education with ten years of high school and twelve years of higher secondary education,

the diversification of courses at the secondary stage, the restructuring of programmes and the much needed equity and quality in secondary education have all attracted the attention of researchers to take up investigations related to secondary education in its entirety. Again, the search for alternatives in secondary education, including the non-formal and open learning systems, vocationalisation of education of the disadvantaged, special education and competency-based secondary teacher education, have of late been developed and field-tested, justifying the treatment of research in secondary education as an exclusive category.

In all, 30 researches on secondary education have been abstracted, out of which 14 are based on doctoral theses, 6 pertain to M. Phil. dissertations, and the remaining 10 are based on certain individual/institutional projects. The number, apparently, is not encouraging but, as pointed out earlier, a large number of studies in different areas of education are conducted in the secondary school setting by way of sample, institutional organisation, teaching-learning processes, etc., and these are dealt with in the relevant sections/chapters of the present as well as the previous four surveys of research in education. Viewed from this perspective, it is desirable and indeed necessary to consider aspects specific to secondary education which have started attracting the attention of the researchers.

A review of the abstracts indicates that researchers have mainly dealt with areas/facets like the new pattern/system of secondary education, academic performance correlates, attitude towards the system, drop-outs and stay-ins, study habits, and innovations in secondary education. The themes have accordingly been categorised for convenience of analysis and identification of trends.

The New Pattern and System of Secondary Education

The single largest number of studies, i.e., 9

studies out of a total of 30, fall in this category. The two doctoral theses looked into certain crucial issues related to the new pattern while the rest were concerned with the system of secondary education as a whole. Maheshan, G. (1989) investigated the strengths and weaknesses of the +2 stage located in three types of institutions, namely, the composite junior colleges, the composite degree colleges and the independent junior colleges in the state of Karnataka. The study established a definite advantage in delinking the +2 stage from the higher education institutions to ensure its quality. The study also established the need for upgrading the pedagogic skills of teachers and worked out a diploma level programme catering to the professional needs of teachers at the +2 stage. Gautam, N.P. (1988) found that the new pattern of 10+2 has failed to implement the prescribed activity-oriented programmes. In another study, Murugesan, A. (1988) did a critical appraisal of the infrastructural facilities for imparting practical skills in vocational courses and concluded that while the attitudes of teachers and students to most of the application-oriented courses were found to be highly favourable, over 60% of the schools did not have an adequate infrastructure, like workshops, worksheds, farms and requisite tools and implements. The study of Satrushalya, J. (1991) found poor implementation of student activities for want of adequate staff, space, equipment and finance. Kaul, C.L. (1990), in a sample study of library facilities and their utilisation, found the school libraries generally functioning in single-room accommodation, blocking proper stacking of books and display of journals, magazines, newspapers and other material. The other infrastructural facilities found lacking included catalogue cabinets, dictionary stands, book racks and working tables, in addition to the absence of professionally qualified librarians and poor budgetary allocations. Of the other four researches dealing exclusively with the secondary system, one is a case study limited to a single school. The second study is a

normative survey for studying the system in its totality in the city of Calcutta. The remaining two studies are connected with the systems-analysis approach to the study of secondary education. Using the 'case study' method, Palanivelu, S.P. (1992) conducted an analytical study to find out the impediments which hindered the development of education in SMSU Higher Secondary School, Karaikudi, and to devise and implement the needed action programme to overcome the hurdles. The study analysed the attitudes of pupils, teachers and parents on aspects like general upkeep, maintenance of discipline, organisation and conduct of co-curricular activities, eliciting public cooperation, conduct of examinations and proper utilisation of funds. Majumdar, T.R. (1988) and Chaudhari, R.B. (1990) made in-depth studies of the secondary school system in relation to its significant components—school, pupils, teachers, curriculum, timetable and general environment—which made it possible to identify not only the shortcomings but also the potentialities of the system. Adopting the systems-analysis approach, Gill, S. (1989) studied the system of secondary education in Chandigarh, while Bhatta, H.S.G. (1989) conducted a study at Mysore. The Mysore study examined the performance of the system with reference to three output variables, namely, achievement, equality and relevance. Gill's study, on the other hand, subjected as many as nine inputs to analysis. These included student input, teacher input, organisational climate, leadership style, teacher morale and academic motivation, study habits, physical facilities, and innovations. While both the studies noted the growth of access to education as positive, they also found disparities as regards gender and social groups. The quality of the inputs was not found to be keeping pace with the changing and ever growing demands. Again, the quality of output in terms of student performance and innovativeness of the schools was found to be only average. The process variables, though not extensively probed, were found to contribute to variations between good and bad schools.

Academic Performance Correlates

The second largest number of studies, 7 out of a total of 30, are in this category. Out of these, two studies pertain to parental effect on academic achievement and four studies are concerned with personality variables and socio-psychological correlates of pupil performance. One study is of a general nature dealing with the causes of poor performance in the HSLC examination. Again, the first two studies are doctoral theses while the rest are independent investigations, the last one having been sponsored by the SCERT in the state of Meghalaya. Using a Parental Encouragement Scale, Aggarwal, K (1986) made comprehensive district-wise comparisons amongst the different educational groups of secondary schools in the Garhwal District of Uttar Pradesh. It was noticed that the high-achieving group was found as getting a higher amount of parental encouragement in all the groups based on gender, district and urban-rural location, demonstrating thereby parental involvement as a positive correlate of academic achievement. Using the 'case study' method, Amrithalingam, P. (1991) studied parental involvement of secondary school under achievers in Karaikudi District in Tamil Nadu and discovered that the under achievers' parents in almost all the groups—based on religion, caste, family status, docility, educational qualifications, income, and occupation—had not taken interest in their childrens' physical and mental development and had paid little attention on inculcating in them good-habit formation for studies and participation in co-curricular activities. Using Witkin's Group Embedded Figures Test and Cattell's Jr-Sr High School Personality Questionnaire, Sayed, A.N. (1990) studied the relationship between cognitive style and the personality variables of secondary pupils, revealing a definite difference between the field-independent and field-dependent groups on the factor structure in respect of personality variables. The field-independent pupils were found to be more intelligent, emotionally stable, warm hearted, undemonstrative, controlled and

relaxed as compared to their field dependent counterparts. Mulia, R.D. (1992) studied the effect of grade, gender and area on the IQ levels of the secondary pupils in Ahmedabad District. While no significant difference was found in the IQs of boys and girls, the main effect of area and grade was significant, the difference being in favour of urban boys of Class IX. Somewhat unusual findings have been reported by Verma, B.P. and Tikku, A (1990) wherein SES and general intelligence were not found to have any significant effect, singly or jointly, on any of the investigated learning styles of high school students—namely, independent, dependent, participant, avoidance, collaborative and competitive styles of learning. This is surprising and it may be difficult to corroborate these findings with the large number of conclusions made in India and abroad in this regard. Tripathy, A and Tiwari, B.D. (1991) made evident the differential effect of demonstration on the verbal problem-solving of eighth and ninth class pupils with high and low degree of dependence-proneness, in that the low-dependence-prones were more efficient than their high dependence-prone counterparts. A finding such as this is in line with the theory that high dependence-prone pupils have lesser capacity to analyse and mostly take a passive approach to solve problems involving reasoning. Lastly, in an action type of research sponsored by the Meghalaya SCERT, James, L. (1989), located the possible causes of poor performance of pupils in the HSLC examination of the Meghalaya Board of School Education as less time devoted to teaching and homework, failure on the part of teachers to give individual attention and provision of inadequate facilities.

Attitude Towards the Secondary Education System

There are three interesting and very important studies in this area, one Ph.D. thesis, one M.Phil dissertation and one independent study. All the studies are concerned primarily with attitudes of pupils to one or the other aspect of secondary

education. Budhdev, V.P. (1989) studied the attitude of pupils towards various school subjects. He found that while girls showed an overall positive attitude towards various subjects, boys had a better attitude towards science subjects. The study also revealed that the high-intelligent group of pupils (regardless of gender) had a better attitude towards mathematics and English than their low-intelligence counterparts. Likewise, the high SES group of pupils were found to have a more positive attitude towards mathematics and English than their counterparts belonging to the low SES groups. Clearly, the trend is indicative of a positive relationship between achievement and attitude towards a specific subject or combination of subjects in the secondary school curriculum in our country. Deb, M. and Nanda, P. (1989) studied the attitude of Class X rural and urban pupils towards school and teachers and noted significant differences; urban pupils scoring higher than their rural counterparts in regard to their attitudes both towards school as well as teachers. Significantly, no gender differences in the attitude towards school were found. Pathan, S. (1988) explored the attitudes of pupils and teachers in single-sex as well as mixed schools in Poona City. Amongst other findings the study revealed that both boys and girls from co-educational schools with English and Marathi media have a favourable attitude towards (i) teachers, and (ii) self.

Studies on Drop-outs and Stay-ins

Studies on the phenomenon of drop-out, and its causes and remedies, have so far predominantly been conducted at the elementary level in view especially of the constitutional commitment to the universalisation of elementary education. Research in this area at the secondary stage has till recently not been adequately and systematically taken up. It is at best limited to compilation of statistics regarding the number of drop-outs, collected mostly by the central and state governments and certain organisations like the NCERT and the SCERTs. The phenomenon

of drop-out and the associated causal factors at the secondary stage might be quite different from that at the primary stage of education. Thus, the secondary stage drop-out, as an area of research in its own right, has emerged recently. There are two studies abstracted in this area. One of these is a doctoral study while the other is an independent piece of research. Pathy, M.K.'s study (1990), through an extensive survey, attempted to know the trend and ascertain the magnitude of educational wastage in the secondary schools of Sambalpur District and find out the causes and identify the rural-urban character of the phenomenon. The average rate of wastage, as found during the period 1951-81, was a stunning 71%, 79% and 90% in Classes V, VII and XI, respectively. As for the casual factors, the study convincingly pinned down the phenomenon to financial hardships generally and to failure in the particular class examination and in between the last two classes of the secondary stage. It also established that a significant positive relationship existed between the drop-out's liking for the subject and the subject-teacher and the drop-out's marks secured in the examination. In an independent study on differential personality profiles of the high school drop-outs and stay-ins, Nayal, G.S. and Nayal, S. (1989) found the rural stay-ins as more intelligent, more active, more mild, more tender-minded, more controlled and more relaxed than their drop-out counterparts. Again, as for the urban drop-outs, they were found to be less intelligent, possessing weaker superego strength, tough-minded and more tense in comparison with their stay-in counterparts. Clearly, the trend as derived from the two studies discussed above lays emphasis on analysing the phenomenon of the drop-out so as to improve the retention levels at the secondary stage.

Development of Understandings, Study Habits and Skills

Three research studies have been abstracted in this area including two doctoral theses and one

research project sponsored by the Indian Council of Social Science Research. Chelini, A.B. (1991) assessed and compared the achievement of Class VII students in respect of basic understandings and skills based on a content analysis of the textual materials and opinions of experts in non-language subjects. The study revealed that the highest number of concepts mastered by any student was 39 (out of 63) in science, 28 (out of 38) in mathematics and 30 (out of 41) in social studies. That is to say that a majority of the students who enter the secondary stage are found deficient in more than 50% of the basic understandings and skills tested in science, mathematics and social studies. Ghalsasi, P.G. (1988), in an experimental as well as descriptive study, identified trends and patterns regarding the study skills of secondary pupils and prepared a programme for developing/ strengthening the desired study habits/skills. Using Palsane's Study Habits Inventory and other tools, it was found that students had no definite idea about the purpose of studying/objectives of schooling, their responses at best covered 'better jobs', 'social status', etc. It was found that nearly 60% of the students resorted to lip movement and murmuring while doing silent reading implying thereby lack of proper skill-development for silent reading. Again, nearly 50% of the students, on their own admission, did not do any homework; nor did they receive any guidance from teachers and parents. As many as 70% of the students never thought of preparing/utilising a time-schedule for their studies. The ICSSR project carried out by Devarajan, G. (1992) assessed the study habits of the secondary school pupils in Kerala; he found that a majority of them (53.52%) were interested in reading Malayalam novels, showing little interest in other subject areas such as science, geography, etc. The reading of textbooks generally available in the school library was done as a preparation for examinations. The reading of newspapers was mostly limited only to sensational news. Significant differences were, however, found to exist in the choice of types of

story books/magazines by students belonging to the different income groups. Evidently, this trend offers vast scope for further research and for improvement.

Teachers' Problems

Secondary school-teachers' problems are many and various. These could be professional and academic in nature; personal and interpersonal problems; and problems generally related to administration, management and the general motivation and overall job satisfaction of the teachers. However, the three studies abstracted in this area cover the problems of teachers in the government and private secondary schools; staff relations in higher secondary schools; and the secondary school-teachers' job satisfaction and job motivation. In a comparative study of the problems of the government schools and the privately managed schools, Mohapatra, T. (1991) found that while both types of schools were characterised generally by crowded classes, poor human relations, disapproval of the procedure of preparation and selection of textbooks and that both types generally encouraged private tuitions, the government school-teachers were provided with better infrastructural facilities, laboratory equipment, residential accommodation, etc. and consequently they showed better results in the final H.S.C. examination. Again, the government school-teachers were found to have better job satisfaction than their counterparts in privately managed secondary schools. This last finding is corroborated by the results of another study conducted by Das, B.L. (1988) who found 77.6% of the government school-teachers as positively motivated as against only 35.33% of their counterparts in privately-managed schools. A further analysis of the data in this study revealed that 92% of the rural teachers were found as positively motivated as against 24% of their urban counterparts. In another study, Mohanty, P.K. (1990) investigated the problems of staff relations and concluded that when analysed school-wise, the staff relationship was not found to be very congenial

and that the sociometric structure of the teachers varied from school to school. Again, sociograms and bar diagrams were found to indicate poor relationship between teachers and heads of the institutions—both males and females. While all this is interesting and revealing, further in-depth probing is needed to convincingly arrive at conclusions.

Studies on Innovations

Innovations are necessary in any growing and dynamic system of education. Assessment of innovations as conceived, planned and implemented is perhaps even more necessary in order to sustain innovative schemes and programmes and institutionalise them to the extent possible in due course of time. Two studies abstracted in the area of innovations at the secondary level pertain to the Navodaya Vidyalayas and the existing provision of peace concepts in textbooks. Haridas, M. (1992) did a critical appraisal of the Navodaya Vidyalaya scheme as implemented in the state of Kerala and found that ever since the establishment of the first two Vidyalayas in 1986-87, the representation given to the various groups was as per the national norms and the admission quota conformed to 75% reservation for the rural children. It was also found that the institutions had adequately qualified staff and extensive campuses with good buildings. However, the schools lacked adequate laboratory equipment, proper health care and recreational facilities and provision for staff development on a continuing basis. It was also found that the Scheduled Castes/Scheduled Tribes students who were found to be academically poor at the entry point continued to be so even at the exit point as compared to their other counterparts. A finding such as this indicates that, to an extent, unsatisfactory performance by the students belonging to the weaker sections of the society defeats the very purpose for which the Navodaya Vidyalays have been established. In another study on innovations, Rajam, G. (1990) content analysed the higher secondary textbooks

with a view to identifying the peace concepts in the subject areas of language and social studies. The study revealed that the distribution of peace concepts was more in history textbooks than in commerce textbooks. Further, among the four forms of concepts—individual, social, national and international—the societal concepts were found to have more distribution than the other three forms. The absence of the distribution of any of the forms of the peace concepts was conspicuous in the commerce textbooks, especially those prescribed for Classes XI and XII.

THE GAPS AND THE RESEARCH PRIORITIES AND THEIR IMPLICATIONS

The ever growing trend of educational research in the area of secondary education, both individual as well as institutional, is indicative of the conscious effort to promote research for finding solutions to the problems of education at the high and higher secondary stages. As much of the educational research is said to be generally lacking in stability, continuity and quality, the researchers in the field have to consider these aspects seriously. For one thing, educational research is multidisciplinary in nature and thus lacks a well-defined boundary as a subject of study. Also, there is the problem of the criteria against which educational research should be viewed. An important criterion, of course, is the educational perspective that the studies might reflect on the part of the researcher. It is this lack of perspective which gives rise to certain gaps and is largely responsible for much of the research activity being without purpose and direction, on the one hand, and *ad hoc* priorities on the other. What then should be the basis of determining the priorities? A pragmatic and perhaps the least controversial view might be to start by first looking at the emerging trends in education generally. That is to say that the priorities of educational research in secondary education could be those problems of education which are reflected by and associated with the emerging trends in secondary education.

New thinking is developing about the role of education in the national development programmes. It is well recognised that there is an interactive relationship between educational innovation and overall development and that education makes an important contribution to the creation and formation of a new man and a society based on social justice. It is also recognised that problems of national development would be solved with less difficulty if the educational programmes were suitably modified so as to relate them to the problems of national reconstruction. Research on linking education to problems of national development is, therefore, a clear-cut priority. Programmes of secondary schooling provide the most appropriate setting for making a beginning in this regard. This has to attract the due attention of the educational researcher as well as the educational planner.

An important trend allied to the concept of linking education to national development, and indeed implicit in it, is the increasing emphasis on education for rural development. Again, modern planning emphasises evolving strategies of integrated development. This approach envisages the kind of programmes that would ensure the balanced improvement of the economic and social life of the rural people, especially those belonging to the Scheduled Castes and Scheduled Tribes. The economic dimension of rural development envisages economic growth which, in turn, leads to the improvement of economic status. The social dimension includes the provision of health, education and welfare services—services that would create happiness among the masses. The implications of the concept of rural development for educational research, therefore, are evident. It might mean the development and verification of several educational concepts of rural development in terms of alternative structures and methods. This has unfortunately not been meaningfully attempted. If the requisite educational facilities were to be created for rural development, several research questions would be raised:

1. should rural schools be different from urban schools?
2. should rural teachers be differently trained?
3. should rural schools use the same curriculum as is used in urban schools?
4. should rural schools use the same schedule as the urban schools?
5. would it go against the principle of democratic education if the rural schools were operated quite differently from those in the urban areas?

There can indeed be several other questions for the educational researcher to examine in this context.

Access to need-based relevant education is accepted as a commitment for providing social justice. This problem is more acute at the secondary level. In view of the likely accomplishment of universalisation of elementary education in the near future, secondary education is fast becoming education for the people. But the problems involved in expanding secondary education are not limited to enrolment alone. The educational issues such as equity, quality, etc., which are generally designated as the crucial issues at the elementary stage, have now started to loom as prominent problems of secondary education as well. This is particularly so at the +2 stage at the end of which the students either go for higher education or enter employment. This has implications for various type of educational functionaries who might address themselves to various research questions: (1) how to provide access to the growing numbers of secondary school students? 2) how to operate a relevant secondary education system? and 3) how to restructure courses with the contents so modified as to suit the changing needs and aspirations?

Much has been said and written on vocationalisation of secondary education in recent decades. The introduction of the 10+2 pattern of secondary education emphasises vocationalisation of education at the +2 stage and improvement of standards of education

generally. While some attempts have been made, with a degree of success, for restructuring the courses of studies and for developing and trying out upgraded content, including that of science and mathematics, the research effort with regard to vocationalisation of secondary education has failed to deliver the goods satisfactorily. It is high time researchers came forward to undertake studies on the concept, rationale, policies and programmes of vocationalisation and disseminate the findings so as to evolve viable alternative models of vocationalisation of courses.

As far as equality of educational opportunity is concerned, surveys have been conducted to identify locations where new schools have to be opened. The problem arises in sparsely populated areas where secondary schools are not considered viable. Providing further schooling facilities to primary-school leavers in far-flung, hilly or desert areas and to the children of Scheduled Castes and Scheduled Tribes people living in thinly populated scattered habitations is a challenging problem. The same is true for education of girls, especially in the rural and backward areas. Co-educational institutions at the elementary level are well accepted now but at the secondary stage the socio-cultural taboos still prevent parents in the rural and backward areas from sending their daughters to school, thus posing a challenge to the researchers, teachers and managers of education. Studies on facilities like providing midday meals and supply of free textbooks have been conducted and their findings have been utilised by the educational planners to some advantage. It would be worthwhile if educational research addressed itself to such issues as decentralisation of educational control, languages other than the mother tongue as a media of instruction at the secondary stage, community and parental involvement in the management of secondary schools, and special education for handicapped children, deprived children and children from the backward rural areas.

Democratisation of education is another

relevant emerging trend. It is both a social as well as an educational concept having far-reaching significance. Democratisation of education is generally referred to as providing wider access to educational opportunities. Educationists have now started thinking beyond the fold of formal education and have started adopting the principle of creating opportunities for all willing learners irrespective of the age of the learner or his/her stage of education. This has given rise to the concept of distance learning and open schooling. It has also broadened the structure and methods of education and developed various modes of learning as a part of the instructional system. All this needs to be empirically examined.

Another important trend is, what has come to be described as 'lifelong education'. That an individual learns from the womb to the tomb is an age-old adage. However, educationists today have started visualising the concept of lifelong human learning in a different perspective, with a different approach which stems from the realisation of the limitations of the formal education system to meet the educational requirements of the present-day world. Again, the advances in the field of science and technology have changed the socio-political life of the people drastically. The consequent effect of this phenomenon in the formulation of objectives and the process of the educational system is tremendous. The educational system today can hardly afford to adopt education as a one-shot affair, nor can the educators limit the process of national education within the structures of formal schooling. It is necessary to facilitate self-learning as a part of lifelong education. If this is to be translated into practical operational terms, educational planners and researchers need to develop methods and structures that would create the necessary conditions for lifelong education.

Devising innovations to meet the challenge of education is a must. Educational change stimulates social change in the sense that changed education produces a new type of man equipped with a new type of potential.

Educational change is thus meant to create social change in the ultimate analysis. Surveys have been conducted to find out innovative programmes and practices, and their findings made available. These innovations have been studied mainly in the areas of instructional organisation, teacher behaviour, school management, curriculum development and evaluation procedures. Amongst other things, the findings have revealed that there do exist teachers, principals and others associated with secondary education who are capable of generating new ideas and evolving and implementing innovative programmes. Innovations are visualised to provide solutions to a wide variety of problems—pedagogical, social and national. Investigations should, therefore, be taken up to study the process of innovation as an integral part of the secondary education system. This would pave the way for creating, planning, implementing and evaluating innovative programmes of secondary education.

Lastly, the current interest of educational researchers in the system-analysis approach as a technique of research is indicative of a growing trend to assume education and its components as systems. The central concept of this approach is the relationship between the inputs and the outputs. This technique envisages dividing the activities of a given system into inputs (things that go into the process), the process itself, and the outputs which follow the processing of the inputs. As regards secondary education then, the inputs are its resources, both human as well as material. Its process is what goes on (while the inputs are being used), and the outputs may be conceived of as passing/completing the stage successfully or acquiring knowledge/skills or adoption of new ideas and innovations by the schools. However, since it is the process which transforms inputs into outputs, its role is crucial in this approach as a research technique. Thus, while the use of the systems analysis approach in research on secondary education is a positive trend, due emphasis on the process variables would further enhance its value.

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