CHAPTER III

DEVELOPMENT OF VOCATIONAL EDUCATION IN INDIA AFTER 1947

After the attainment of Independence in 1947, a wave of enthusiasm in favour of technical and vocational education has been steadily rising in this country. It has come to be increasingly realised that if the economic development of the country is to take place and the standard of living of the masses is to be raised, adequate provision for technical and vocational education should be made. Expansion of education among the masses and the development of facilities for vocational and professional education can be regarded as the sheetanchor of all plans of economic development.

In the post-Independence period, India has decided to reduce poverty by adopting modern science and technology. She has also taken up a developmental programme of rapid industrialisation. Under these circumstances provision for adequate vocational

education is a must. Again, this nation has decided to increase agricultural output to become self-sufficient in the matter of food. This can be made possible only through expansion of agricultural education. The objective to improve the standard of health and to lengthen the longevity can be fulfilled only when medical and health education is encouraged. In short, emphasis on vocational and technical education has become indispensable in this country. The Planning Commission was aware of some of the glaring defects of Indian educational system and was in favour of reorganising the educational programme as to give more emphasis to technical, industrial and vocational education.

The University Education Commission (1948-49) on Professional and Vocational Education

One of the most significant events, in the history of higher education after 1947, was the appointment of University Education Commission in 1948 under the Chairmanship of Dr. Radhakrishnan by the Education Ministry of India.

The Commission defined professional education as ' the process by which men and women prepare for exacting responsible service in the professional spirit. The term may be restricted to preparation for fields requiring well-informed and disciplined insight and skill of a high order.'[1] Less exacting preparation may be designated as Vocational or technical education. The

[1]Ministry of Education. 'The Report of the University Education Commission (1948-49), Government of India, 1962, p.174.

Commission also rightly pointed out that the foundation of professional education should be not only technical skill, but also a sense of social responsibility, an appreciation of social and human values and relationships, and disciplined power to see realities without prejudice or blind commitment. It discussed in details the prevailing defects of the university education in India including neglect of professional education.

The Commission opined that for India, which is predominantly an agricultural country, education in agriculture has a very important place in the national plan of education. Provision should be made to provide agricultural education in the primary, secondary and higher educational institutions. This education should have a rural bias so that the subject may be taught on the basis of real and practical experience. For agricultural education the Commission recommended that -

(i) The existing as well as the new agricultural colleges should be affiliated to rural universities.

(ii) The State and the Central Governments should make provision for agricultural laboratories at various centres.

(iii) For each basic school and village secondary school, provision should be made as far as possible for an agricultural farm.

(iv) An Agricultural Committee may be attached to the University Grants Commission.

In regard to engineering and technological education, the Commission recommended that -

(i) The existing institutions should be treated as national property and efforts should be made for their development.

(ii) The number of engineering schools should be increased.

(iii) The engineering courses should be reshaped to meet the requirements of the expanding economy of the country. Particular attention should be paid to the subjects of practical utility.

(iv) Higher technological institutions should be established and Post-graduate instruction and research should be started in existing engineering colleges.

For education in Commerce and trade the Commission opined that more emphasis should be laid on practical instruction and specialised studies should be encouraged. The Post-Graduate course in commerce should lay greater emphasis on practical rather than bookish study.

It also made some suggestions to improve medical education and pointed out that the maximum enrolment in any medical college should be 190. Post-graduate education should be given only in those colleges which have experienced teachers and sufficient equipments. Preference should be given to public health and nursing services.

The Secondary Education Commission (1952-53) on Vocational Education

The Secondary Education Commission (1952-53) under the Chairmanship of Dr.A.L.Mudaliar expressed the following view :

> 'In the past, our education has been so academic and theoretical and so divorced from practical work that the educated classes have generally speaking, failed to make enormous contribution to the development of the country's natural resources and to add to national wealth. This must now change and, with this object in view, we have recommended that there should be much greater emphasis on crafts and productive work in all schools, and in addition, diversification of courses should be introduced at the secondary stage so that a large number of students may take up Agricultural, Technical, Commercial or other practical courses which will train their varied aptitudes and enable them either to take up vocational pursuits at the end of the secondary course or to join technical institutions for further training.'[1]

The Secondary Education Commission recommended the introduction of diversified courses to be provided in Multilatera or Multipurpose Schools. But at the same time, the Commission remarked :

> While we advocate the starting of a certain number of multipurpose schools, it is not our intention to suggest that all schools should be of the same type. There will be room for Unilaterial schools also where intensive training will be provided in particular types of vocational courses according to the occupational needs of the community and locality.[2]

Here also the Commission does recognise the importance of vocational education.

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[1] Ministry of Education, 'Report of the Secondary Education Commission', New Delhi, 1953, p.27.

[2] Ibid., p.37.

For Agricultural education, the Commission recommended that all States should provide much greater opportunities for this education so that more students may take to it and adopt it as a vocation. The Commission was not satisfied with the existing facilities. It remarked, ' At present there are not many schools which have agriculture as a subject of study, and even where it does exist, the instruction given is so theoretical and divorced from practical application that it does not serve any useful purpose.'[1] The Commission also remarked that the training in agriculture has to be provided largely in the field. The student should have opportunities to work under realistic conditions for a considerable part of his study so that he may acquire the right approach to agriculture. The Commission also recommended that along with Agriculture, two other allied subjects should be closely integrated - Horticulture and Animal Husbandry.

Emphasising the importance of Technical Education the Commission remarked that ' the greatest wealth of a country is not to be found in the bowels of the earth but in the ingenuity and skill of the people.' This skill can be well developed by technical education. The Commission pointed out that ' the position (regarding technical education) in 1953 is not really very different from what the Hunter Commission stated in 1882. Very little advance has been made along the lines suggested by this and successive Commissions.'

[1] Ibid., p.38.

The Secondary Education Commission recommended systematic training programme for four distinct types of students in technical side. Arrangements should be made for provision of technical education :

(i) For the students of Higher Secondary Schools in the 4 upper classes.

(ii) For the students who are unfit to pursue the full course of secondary education or who leave the secondary school for other reasons.

(iii) For those who pass the secondary school course and who desire to pursue technical education in polytechnics or occupational institutions without going to a university.

(iv) For those belonging to any of the above categories who after completion of their course are gainfully employed and who wish to improve their prospects by part-time evening classes in subjects of their choice.

The Commission also opined that 'another type of training which is exceedingly important to produce the right sort of craftsmen in industry is the training that can be given to apprentices in industrial concerns. It has not been sufficiently realised that the most important place for the training of a craftsman is industry itself; and the function of the technical school is generally to offer the boys general and technical education as a complement to apprentice training.'

The Commission recommended that suitable legislation should be passed so that apprenticeship in industrial concerns may be

part of the responsibility of industry and that every industry should take a certain number of apprentices for training. Whole-hearted co-operation of industry, trade and commerce should be secured. It may be pointed out that the Indian Parliament passed the Apprentice Act of 1961 for systematic apprenticeship training in India.

The Commission rightly pointed out that ' technical education, if conducted on right lines will ultimately go a long way to lessen the expenditure incurred by industry and by the State and by the people.' A small amount spent on vocational education enables the industry or the trade substantial savings because at every stage of industrial development in this country, there is enormous wastage owing to lack of technically trained or skilled personnel.

The establishment of Multipurpose schools in India is the result of the recommendations made by this Commission.

The Education Commission (1964-66) on Vocational Education in India

The Government of India appointed the Education Commission under the Chairmanship of Dr.D.S.Kothari in 1964 to advise the Government on the national pattern of education and on the general principles and policies for the development of education at all stages and in all aspects. This Commission has made some valuable recommendations for promoting vocational education in

India. It has rightly pointed out that the existing system of education in India is largely unrelated to life and there is a wide gulf between its content and purposes and the concerns of national development. It has expressed the views that ' the single most important thing needed now is to get out of the rigidity of the present system because yesterday's educational system will not meet today's, and even less so, the need of tomorrow.'

This Commission has drawn attention to the fact that, in spite of the recommendations made by the Indian Education Commission as far back as in 1882, and reiterated by various Committees and Commissions, little or no effective action was taken to implement the recommendations and even today, the enrolment in the vocational courses at the secondary stage is only 9 per cent of the total enrolment which is among the lowest in the world.[1]

The Commission has also noted that even at the university stage, vocational education (other than for law, medicine, or teaching) was mostly ignored throughout the last century. Even as late as 1917, the Calcutta University Commission pointed out that the great majority of university students - about 22,000 out of 23,000 - pursued purely literary courses which did not fit them for any but administrative, clerical, teaching and

[1]Ministry of Education. 'Report of Education Commission (1964-66),' Government of India, 1966, p.9.

(indirectly) legal careers.[1] About fifty years later, the overall picture has improved only slightly and the proportion of students at the university stage enrolled in all courses of professional education is only 23 percent of the total enrolment.[2]

The Commission visualised the future trend of school education to be towards a fruitful mingling of general and vocational education; general education containing some elements of pre-vocational education, and technical and vocational education, in its turn, having an element of general education. In our present society, a complete separation between the two will be not only undesirable but impossible. The Commission also expects a considerable expansion of professional education at the university stage, especially in agricultural and technological fields. It also points out that about 20 per cent of the students will leave the educational system and join working life at the end of the primary stage and that about an equal proportion will step off from the stream of general education and join vocational courses. It will be necessary to provide adequate facilities for suitable forms of vocational education, either on a part-time or on a full-time basis, for those students.[3]

The Commission also observes that in the present educationa

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[1]Report of the Calcutta University Commission, Vol.I, p.21.

[2]Education Commission Report, p.9.

[3]Education Commission Report (1964-66), p.32.

system there is no direct link between education and employment and no attempt is made even to establish any indirect link by relating the output of the educational system closely with manpower needs or job opportunities. It is it's opinion that if an offer of employment along with a degree or diploma, with an option of choice to accept it, is possible to make, it will improve the motivation of the students, give a purpose to their education, and make them feel that the country needs them and is waiting for them. Of course, the ideal situation will be a trained man available for every job to be done and that an appropriate job would be available for every educated person.

The Commission points out that at present, the labour force cohort (i.e. the boys and girls who attain the age of 16 or over and enter the labour force in a given year) suffers from several defects or difficulties :

(i) Its size is too large. It is about 2 percent of the total population. This is the result of large birth-rate in the country.

(ii) Its educational attainments are also very meagre.@ About 60 percent of the cohort is illiterate and about 40% would have completed primary schooling and attained permanent literacy. Out of the latter 40%, about 25% would have received more than five years of schooling and probably completed the primary school course; about 8% would have completed secondary school and only about

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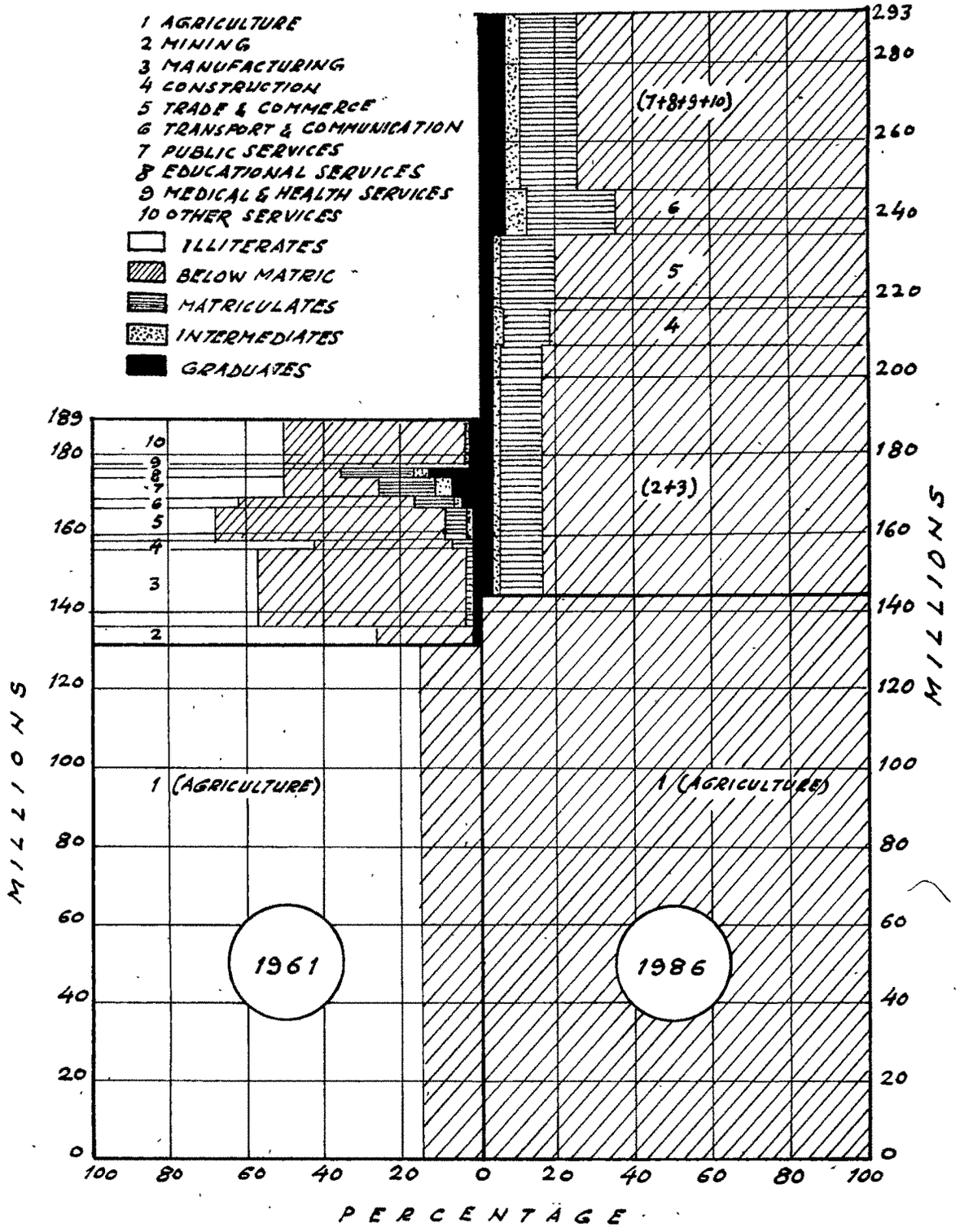
(@For educational level of working population in India (1961 and 1986, see the Chart on the next page)
(Estimated)



EDUCATIONAL LEVEL OF WORKING POPULATION (INDIA)

1961 AND 1986

one to two percent might be graduated. The proportion of educated persons in these cohorts is far too inadequate for the creation of a modern social order. What is worse, the little education that has been given is so predominantly academic that there are no trained persons to man the key posts in certain sectors of industrialisation now being developed.[1]

(iii) The rate of economic development, especially in rural areas, is so slow that there are not enough jobs for even half of this cohort.

The remedy is to provide such education to the young boys and girls as will qualify them, by having a specific job to do and to bring about a very rapid economic development in such a manner that there would be a job for every young man or woman who enters the labour force.

Recognising the urgency of the problem, the Commission fully agreed with the Resolution of the Government of India (4th March, 1958) which emphasized that :

'The wealth and prosperity of a nation depends on the effective utilization of its human and material resources through industrialization. The use of human material for industrialization demands its education in science and training in technical skills. Industry opens up possibilities of greater fulfilment for the individual. India's enormous resources of manpower can only become as asset in the modern world, when

[1] Education Commission Report, p.106.

trained and educated.'[1] It is the task of the planners and educationists to provide appropriate training programmes for the required levels of quality.

The Commission has made the following observations :

1. The development of technical education has been one of the major achievements of the post independence period.
2. Despite repeated exhortation, it is unfortunately still widely felt that vocational education at the school level is an inferior form of education fit only for those who fail in general education and the last choice of parents and students. A concentrated effort will be needed to change this position.
3. There should be a partnership between industry and educational authorities. The training given within educational institutions must be linked directly with production and should be oriented to problem solving.
4. Periodic re-education and re-training to meet an ever-changing technology are becoming increasingly important.

Work-Experience as an Integral Part of All Education

The Education Commission has recommended that work-experience should be introduced as an integral part of all education - general or vocational as one of the programmes to relate education to life and productivity. It has defined work-experience as ' Participation in productive work in school, in the home, in a workshop, on a farm, in a factory or in any other

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[1] Science Policy Resolution, Government of India, 4th March, 1958.

productive situation.' Our system of education has helped to create a tendency to look down upon work, especially manual work. Work-experience will help to overcome this defect to some extent. So far education in this country was the privilege of the upper classes of the society who resisted to engage themselves in productive work. But now this situation is changing fast. A revolutionary experiment in the form of 'Basic Education' was launched by Gandhiji in this country. The concept of work-experience is essentially similar. It will help the entry of youth into the world of work. The Commission emphasised that in providing work-experience every attempt should be made to link programmes realistically to technology, industrialisation and the application of science to productive processes, including agriculture.

Vocationalisation of Education at School Level

Vocationalisation of secondary education is another programme which can help to bring education into closer relationship with productivity. To encourage Vocational and Technical education at the school level, the Commission has recommended that :

(i) By 1986, some 20 percent of all enrolments at the lower secondary level and some 50 percent beyond class X should be in part-time or full-time vocational and professional courses, including both engineering and non-engineering courses.

(ii) A strong effort, especially by the States and the Central Government should be made to encourage boys and girls particularly in the age-group 14-18 to follow vocational and technical courses.

(iii) A concentrated and sustained programme by all Ministries and Departments should be planned out which can interest parents and children in technical work, in vocational courses, and in making technical careers attractive.

(iv) Centrally sponsored scheme of assistance to vocational courses, along the lines of the Smith-Hughes Act of the U.S.A., under which direct subsidies are made from Federal Funds, could give an effective impetus to this programme.

(v) Schools themselves should be outward-looking to the world of work and organise effective guidance programmes.

(vi) It is fundamental that such courses at school stage be predominantly terminal in character. Vocational courses should be designed for the great majority of students qualifying them for direct entry into employment. It should be very clear to the parents, children, educators, trainers and employers what type of employment the trainee will qualify for.

(vii) Opportunities should also be created for the exceptionally gifted children, through further studies, to rejoih the main stream of higher education.

Training of Semi-Skilled Workers

Semi-skilled and skilled workers are trained principally in the I.T.Is; in technical high schools, in junior technical schools, in artisan training centres under the Ministry of

Community Development, in the programme of the Khadi and Village Industries Commission, in a number of private and government trade schools, and in the technical, commercial and agricultural streams of the Multipurpose schools designed to give a vocational bias to the students in preparation for their training as skilled workers.

Outside the industrialised training, a proportion of the present labour force is also trained either on-the-job or through the traditional type of father-to son training. This in its organised form, is controlled under the Apprenticeship Act of 1961. The Fourth Plan proposals include a programme for the doubling of the annual output capacity of the I.T.I's. The Ministry of Labour and Employment, through its various committees, had recently revised the syllabus of the different courses of the I.T.Is and the nature of the training to be offered to meet the training programmes needed by the industries. The Commission recommended that such courses should also include a greater amount of general educatio and give the trainees a broader base of skills. The Commission feels that there is a need for particular efforts to attract boys after the primary school. Even the minimum age of entry could be lowered to 14.

The other main form of full-time technical education for skilled workers is the junior technical school and the

technical high schools. However, a study[1] recently conducted by the Planning Commission, shows a high wastage rate in a number of junior technical schools and the fact that a significant percentage of those passing out do not enter employment but rejoin the educational stream either in polytechnics or P.U.C. courses.

The Commission recommended that the Junior technical schools be renamed technical high schools and the courses offered should be made terminal and the length of the courses may vary from course to course. The Commission also recommended that skilled workers' training courses with entry requirements below Class X be also attached to polytechnics. This would permit the use of existing facilities and staff and provide in some areas a further alternative form of training.

Technician Training

In India technicians are in the main trained in 3-year diploma courses in polytechnics. Again, in this country many graduate engineers are in fact doing what should be regarded as technician type work. Some experts believe that this is a wasteful use of their skills and an unnecessary charge on training costs. All highly industrialised countries are placing more and more emphasis on the training of middle-level technicians whose role and status are unfortunately

[1] Factual Survey of Junior Technical Schools, Planning Commission, New Delhi, 1964.

little appreciated in India. There is a need to make diploma training more practical by including industrial experience. Hence the Commission recommended that -

(i) Polytechnics should be located only in industrial areas.

(ii) These polytechnicians should develop courses allied to agriculture for the craftsmen and technicians needed by agro-industries and extension work.

(iii) All the teachers in polytechnics should not be fresh degree holders from engineering colleges, but should combine good practical experience with academic qualifications.

(iv) Particular attention should be given to developing courses of special interest to girls in all polytechnics. For example, courses in secretarial practice, pharmacy, interior decoration, electronics and radio technology, instrument technology, dress design, commercial art, medical laboratory technology, library science and architecture are some of the courses of special interest to girls. It may be necessary to open more polytechnics for girls in future.

Other Vocational Education

The Commission has recommended a far greater diversification of courses at the higher secondary level (Classes XI and XII). It believes that it is at this level that alongside the polytechnics the greatest effort can be made to

vocationalise and specialize India's educational system. A great range of courses in commercial, scientific and industrial trades can be offered. Terminal courses leading to certificates and diplomas in these areas and in the areas of special interest of girls such as domestic science, nutrition, nursing, social work, etc. can be of one, two, three or four years' duration and be offered in schools or special institutions. The Commission also recommended that arrangements with employers for sandwich courses, or for the part-time release of employees - say 2 or 3 days per week for training purposes should be worked out and evening correspondence and vocation courses should be offered for those who enter employment after Class VII to X.

Education for Self-Employment and Small Scale Industry

The Commission also thought about the responsibility of technical and vocational education for training not only those who will seek employment but also those who will create employment. With electrification, irrigation, communications and other facilities reaching villages, new opportunities for skilled craftsmen will arise either for repair work or for small scale production. Products of technical high schools, polytechnics and the agricultural polytechnics should be encouraged to think of setting up small enterprises of their

own or joining together with others in creating small-scale workshops, industries or services needed by the community on a self-employed, co-operative or community sponsored basis.

Part-Time Education

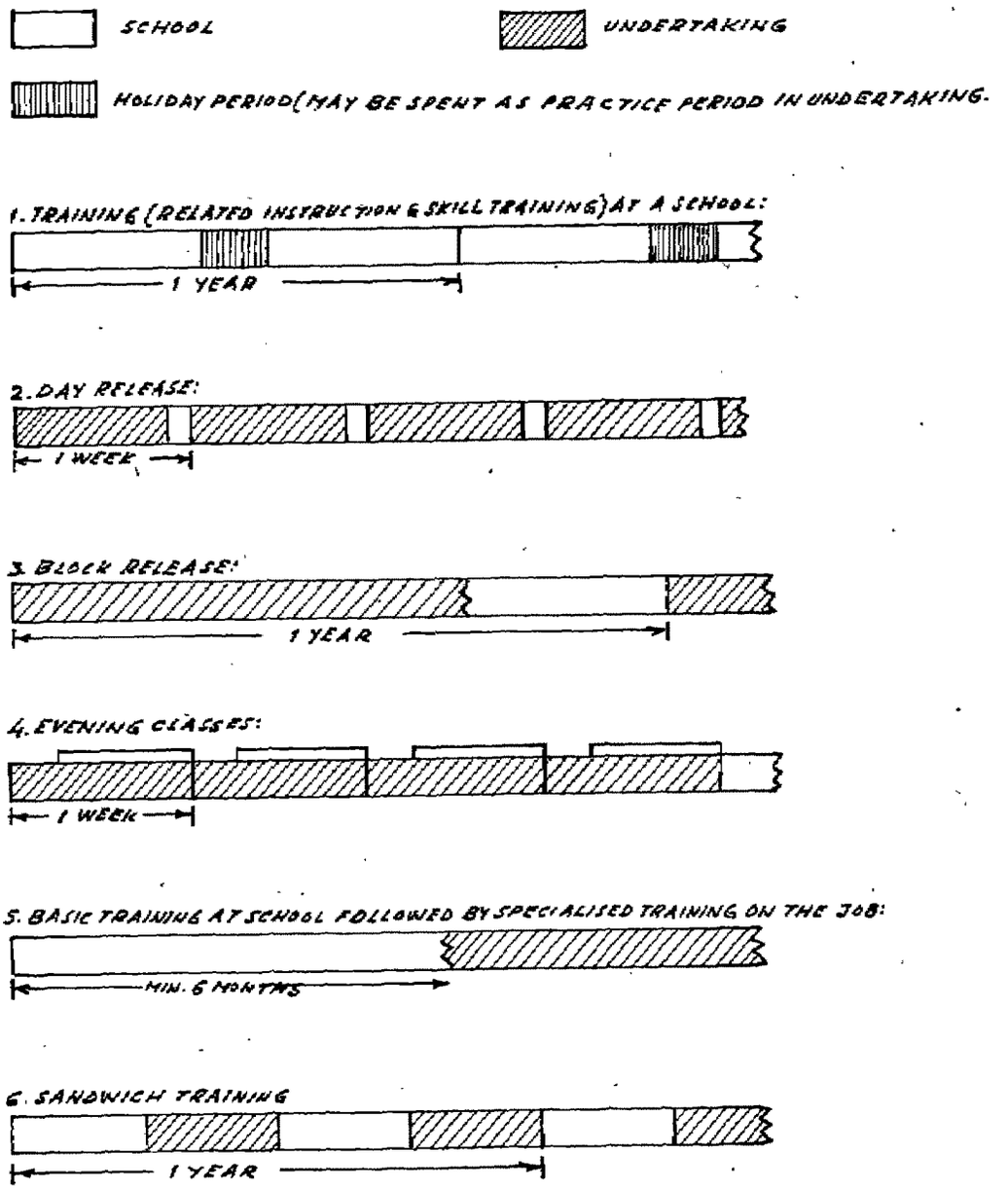
Facilities for part-time on-the-job and vocational and technical training for those who have entered employment or are seeking employment after leaving school below class X, need also to be greatly expanded. These may be offered on a part-time, apprenticeship, day release, correspondence courses, sandwich courses*, or short-intensive course basis and will vary in duration from six months to 4 years. The agencies to be involved in the creation of such programmes would be Government (including the Armed Forces), industry, educational institutions and professional organizations.

Education in Engineering

It is a fact that the facilities for education of engineers have increased in this country after 1947. The Education Commission has made some of the following recommendations for strengthening the programme of Engineering education :

1. The outstanding potential practising engineers and technicians should always have an opportunity to improve their qualifications. For this, wide-spread and professionally supervised facilities for part-time correspondence, and vacation courses should be organised for those who wish to further their training.

* For various Forms of Vocational Training, see the Chart on the next Page)



THE VARIOUS FORMS OF VOCATIONAL TRAINING

2. Ordinarily for an engineering degree a minimum of five years of engineering education after completion of the present higher secondary stage is essential.

3. All institutions not conforming to the prescribed standards should be improved, or converted to institutions training technicians, or be closed.

4. The recruitment of well-qualified B.Sc. students in engineering courses, specially in subjects such as electronics, instrumentation, should be strongly supported and encouraged with courses suitably adjusted to make up for their inexperience in workshop practice.

5. The teaching of the basic sciences specially for those engineers who are to be concerned with research and advanced technology should be strengthened.

6. Production experience should be an integral part of the curriculum. For this, a sandwich type courses should be organised wherever possible.

7. The traditional pattern of providing courses in Civil, Mechanical and Electrical Engineering should be changed and more and more courses like metallurgy, chemical engineering, fuel technology, production engineering etc. should be provided.

8. Research design projects should be made a part of the curriculum from the third year. Projects could be sponsored by industry or Government and students should work in groups with the help of post graduate students.

9. Institutions should encourage organisation of extra-curricular clubs and societies among students to create more interest in additional project work.

10. Wide-spread summer institutes for the upgrading and constant revision of the knowledge of teachers should be organised

Correspondence Courses

The Commission laid stress on developing part-time courses in all institutions on an evening, day-release or sandwich bases for those who were already employed. Over and above these part-time courses, it also recommended for the provision of technical education through correspondence courses. Many countries like Australia, U.S.A., U.S.S.R., etc are using correspondence courses on a wide scale for vocational and technical education. In West Germany also these courses have proved useful. Week-ends and vacation period should be utilised for practical workshop and laboratory training for correspondence students. Proper planning and careful preparation are the important conditions for the success of this course.

Education for Agriculture

It is absolutely necessary that India's food production should keep pace with her population growth. Application of science and technology to agricultural production is not only necessary but is also inevitable. But this is not enough. Provision should also be made for high quality education and research in agriculture. Vocational education in agriculture

has also an important role to play in an agricultural country like India. The Commission opined that the programme of education for agriculture should be based on three main elements - Research, Extension and Training. In order to develop agricultural education and research programmes, the Commission has recommended that :

1. A number of agricultural universities with integrated programmes of research, training and extension should be set up.
2. Provision should be made to attract talented students, researchers and teachers to agriculture.
3. Provision should be made for research, training and extension for agriculture in other universities and institutions of higher learning.
4. Agricultural Colleges should be improved.
5. Primary extension centres should be established to promote agricultural extension programmes.

Agricultural Universities

The Commission has recommended the establishment of at least one agricultural university in each State. Of course, there are some agricultural universities in the country but their growth has not been very even, and even their objectives are not clearly understood by many. These agricultural universities should develop courses like Engineering for Agriculture, specialists in Human Nutrition and Food Technology, Agricultural Economics, Public Administration, Mass communication

Sociology, Anthropology and Law, Resources Conservation, Forestry, Fisheries, Earth Services, Basic Services, Humanities etc. Post graduate education should be given special importance in these universities.

Some agricultural colleges not forming part of agricultural universities, will continue to be affiliated to the other universities but new agricultural colleges of this type should not be allowed to be established as far as possible. Vigorous steps should be taken to improve the existing agricultural colleges.

Agricultural Polytechnics

The Commission has recommended to make a vigorous effort to establish agricultural polytechnics.This will help the training of skilled workers, middle level technicians in agriculture, technicians for supporting services to the farmers, extension workers etc.They should be attached to agricultural universities if possible. These institutions will train non-professional specialists required as farm mechanics, farm managers, laboratory assistants, craftsmen and technicians in agro-industries, assistants in agricultural credit and insurance organisations, self-employed craftsmen etc. They should be multipurpose institutions. Each Polytechnic should have a large scale well-managed farm attached to it. It should also offer short term courses for young farmers,

Courses of special interest to girls and women should be developed.

Agricultural Education in Schools

At present at primary school level agriculture has been introduced as one of the main crafts in junior or senior basic schools in some States like U.P., Gujarat, Maharashtra etc. Agricultural education at this level is less developed in other States of India.

For secondary level, there are agricultural schools which take pupils who have completed their primary education and give the vocational training in agriculture. These vocational schools offer a two-year diploma course. Maharashtra has schools of this type. Madhya Pradesh has number of higher secondary schools which offer agriculture as a subject. In Gujarat few post-basic schools offer courses in agriculture. Again agriculture is also offered as one of the streams in multipurpose high schools.

The Commission has expressed the views that 'none of these courses or programmes have succeeded in imparting the needed vocational competence or in training young persons who will go back to the land as practising farmers.'[1] The Commission, therefore, recommended as follows :

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[1]Education Commission Report (1964-66), p.360.

1. The type of education as at present in such schools often results in meaningless drudgery and can well serve to instil a distaste for agriculture in the minds of the young students. However, adapting the rural boy to his environment can be best achieved by giving an orientation towards agriculture to the whole educational system.

2. In the same way agricultural training given in the institutions of formal education at the lower secondary stage does not lead to vocational competence. Therefore, the period which can be spent in school should be utilised in imparting a sound general education, with particular emphasis on mathematics and sciences. This would be best preparation for coping with the rapid changes that are bound to characterize our agriculture in the future.

The Commission felt that 'Farming implies hard work and mature judgment and the 13+ to 16+ age group is neither physically nor mentally prepared for this. Again persons with some education do not like to remain on the land. Yet the desire to remain on the land can be strengthened appreciably through improved economic opportunities and attractive amenities. Attempts made to create motivation to take to formal agricultural education by stipends, admission preference, etc. will not go far in achieving the objective of producing self-employed agriculturalists. The Commission, therefore, expressed that the proposal for setting up a large number of

junior agricultural schools presents several difficulties and may fail to achieve its objective. It, therefore, recommended that this proposal should be abandoned. The middle level agricultural functionaries can be better produced by the agricultural polytechnics.

The Commission firmly believed that some orientation to agriculture should form an integral part of all general education, not only at the school stage, but also at the university stage and in all teacher education. It, therefore, recommended that :

1. All primary schools should give an agricultural orientation to their programmes. This can be made through courses in general science, biology, social studies, mathematics etc.
2. Agriculture should be made an important part of work-experience.
3. Orientation to agriculture and rural problems should also be introduced in all teacher training programmes.

Extension Programme for Agricultural Education

The Commission observed that ' the most immediate task for agricultural education is to transmit to farmers the technical information now available which will enable them to increase their yields and their family incomes. Agricultural extension programme can help a lot in realising this difficult

goal to some extent. It recommended that at least one primary extension centre should be set up in every community development block for the purpose of extension work, and the beginning may be made at once wherever the necessary land and facilities are available. These centres can also be utilised for giving part-time agricultural education to young persons who have left school and have adopted agriculture as a vocation. It will also be desirable to associate the higher primary and secondary schools located in that area with this primary extension centre. This will provide guidance to the teachers and will give orientation in agriculture and work-experience to the students.

Institutions of Research and Higher Learning in Agriculture

Today there are about 520 Agricultural Research Centres in India run either by the State Governments or by the Indian Council of Agricultural Research. Further there are 89 Agricultural and Veterinary Colleges, 85 Research Centres in Animal Husbandry and Agricultural Universities. The outcome of all this joint enterprise has been the turn over of more than 7000 Agricultural Graduates in different branches of agriculture at the graduate, post graduate and doctoral level every year.

Development of Technical Education in India after 1947

Today, the well-being of a nation is related to the use that it makes of science and technology. Application of Science and technology cannot be a result of chance. It is a result of a firm foundation of a sound system of technical education. The most important machinery set up by the Central Government to provide leadership in technical education is the All India Council for Technical Education (established in 1946), with representatives of Government, industry, commerce and technical institutions. Four Regional Committees to look after the special requirements for development of technical education were also set up. Four institutions of technology at Kharagpur, Kanpur, Bombay and Madras were set up also. The Indian Institute of Science at Bangalore is also largely expanded now.

Education is a State subject in India. But so far as technical education is concerned there is a healthy partnership between the States and the Centre. The Centre is responsible for the development of university or higher technical education while the State looks after the education of the technical schools. The Centre takes greater interest in technical education because it is expensive and there should not be unnecessary duplication of the programme. Again Planning of economic development should be considered on the national level. The

Central Government provides dynamic leadership to the States in technical education through AICTE (All India Council for Technical Education). There are also seven All India Boards of Technical studies to advise AICTE on all technical matters pertaining to their respective fields. Each State has a Department of Technical Education with a Director of Technical Education. Again each State has a State Board of Technical Education. The State Education Minister is the Chairman of this State Board of Technical Education. Since the First Five Year Plan, great importance is given to technical education. In 1947, there were 38 institutions with a total admission capacity of 2,940 students per year for first degree courses. There were 53 polytechnics also with a total admission capacity of 3670 students for diploma courses per year. By 1960, the number of institutions for first degree courses increased to 97 and polytechnics to 193. The total admission capacity of the institutes increased to 11,500 students for the first degree courses and to 25,299 for diploma courses. In 1966, this number of students increased to 24,000 for degree courses and 44,000 for diploma courses. Thus in the last 18 years (from 1947 to 1966) the number of percentage of students for degree courses increased by 716. The number of students who came out with technical degrees also rose from 1,270 in 1947 to 10,500 in 1966 thus showing the increase of 727 percent. This is an amazing achievement

The rate of such amazing achievement is also maintained for diploma courses also. The percentage of successful diploma holders increased by 1,080 during the period 1947-1966. The following table shows the development of Technical Education in India during her Three Five Year Plans.[1]

TABLE 67

Year	Degree Courses		Diploma Courses	
	Admission	Output	Admission	Output
1947-48	2,940	1,270	3,670	1,440
First Five Year Plan :				
1951-52	4,790	2,690	6,220	2,630
1955-56	5,890	4,020	10,480	4,500
Second Five Year Plan :				
1956-57	6,610	4,340	10,320	4,100
1960-61	13,820	5,700	25,800	7,970
Third Five Year Plan :				
1961-62	15,690	7,030	27,690	10,300
1965-66	24,000	10,500@	44,000@	13,000@

(@ estimated)

It may be noted from this table that though the expansion in technical education is tremendous from 1947 to 1966, the problem of wastage is equally disappointing. During the year 1947-48 the percentage of failure (wastage) was 57 in degree

[1]Source: Ministry of Education. 'Fourth Five Year Plan of Technical Education : A Draft Report', Delhi, 1965, p.5 (Table I).

examinations while 63.5 in diploma examinations. This position almost remained unchanged in the year 1965-66, when the percentage of failure (wastage) was 56.3 in degree examinations, and 61.4 in diploma examinations. This wastage is horrible and nothing can be said in its defence or support. 'Attempt should be made to reduce this wastage to 35 per cent during the Fourth Five Year Plan and still to 25 per cent during the Fifth Five Year Plan.'[1]

It may be said that though India has made tremendous progress in the field of technical education, still it needs a well-planned expansion to cope up with the economic and industrial progress of the country. In U.K. out of 100,000 people there are 15 degree or diploma holders in Engineering, in Germany this number is 25, but in India, it is only 4.[2] This shows how difficult is the task ahead.

The table on the next page indicates the expansion of facilities for higher technical (engineering and technology) education during the period 1951 to 1969.

It may be noted that since 1966, there has been no expansion of the facilities at the degree and diploma levels. In 1968, when unemployment among engineering graduates and diploma holders became acute, admissions to technical institutions had to be regulated. Most of the engineering colleges and

[1] Fourth Five Year Plan of Technical Education, Op.Cit., p.87.

[2] M.S.Thacker; 'Convocation Address to the M.S.University of Baroda, No.27, 1965, p.6.

TABLE 68

Number of Students who received Higher Technical Education (Engineering and Technology) In India from 1951 to 1961

Year	Institutions		Sanctioned intake		Out-turn	
	Degree	Diploma	Degree	Diploma	Degree	Diploma
1951	53	89	4,788	6,216	2,693	2,626
1956	71	109	6,612	10,318	4,337	4,103
1961	111	209	15,497	26,525	7,026	10,349
1962	114	231	17,669	29,924	8,426	12,046
1963	118	248	20,744	37,822	9,120	12,938
1964	126	261	21,700	41,300	10,320	17,280
1965	133	274	24,695	48,048	10,282	17,699
1966	137	284	25,006	48,576	13,051	22,260
1967	137	284	25,070	47,120	13,878	22,476
1968 (Provisional)	135	280	25,000	47,000	15,820	23,224
1969 (Provisional)	135	278	25,000	47,000	17,800	27,900

(Source : 'India 1970'. Ministry of Information and Broadcasting, Government of India, New Delhi, 1970, p.71).

polytechnics reduced their annual quotas. This reduction was also maintained in 1969.

It may be remembered that now the technical institutions have planned for an annual admission of 25,000 students at the degree level and 48,600 students at the diploma level. The main emphasis in technical education during the Fourth Five Year Plan will be on improving quality and standards of technical education. Some of the important programmes would relate to pre-service and in-service training of teachers, reorganisation of diploma courses in order to reorient them to the needs of the industry, expansion and improvement of post-graduate engineering studies and research. There is a great scope for qualitative improvement of engineering education. The number of places for practical training in industry was only 2000 in 1967-68. This was increased to 11,000 in 1968-69. This level is likely to be maintained and even increased during the Fourth Plan. Rs. 54.32 crores for the States, Rs. 5.40 crores for the Union territories and Rs. 67.00 crores for the Centre have been allocated for technical education during the Fourth plan.

Growth of Professional Education

It may be pointed out that though there is a tremendous progress in technical and engineering, higher education in India during the post-Independence period, it is not the case with other professional education at the post-secondary stage. One of the difficult problems of India's education is her slow and inadequate development of professional education; even today about 75 percent of our college students pursue purely academic courses. Out of 100 students receiving college or higher education in 1951 only 22 pursued studies in professional colleges or institutions. In 1961, this percentage increased from 22 to 25 only. In any case this increase cannot be considered a rapid progress.

From the table shown below it may be noted that the number of students receiving education in all professional colleges increased from 85,595 in 1951 to 2,38,987 in 1961 (i.e. 279.2 percent increase). Yet this increase is only from 22.4 percentage to 26.7 percentage of the total number of students receiving education at college level. The table also shows that the number of girls receiving higher education in professional colleges increased from 5,351 in 1951 to 26,124 in 1961. Yet this increase is only 4.5 percent (from 10.4 to 14.9) during this decade. This clearly indicates that about 75 percent of our college students still prefer purely academic education.

The following table shows : TABLE 69

The Increase in Number of Students in Professional Colleges from 1951 to 1961

Year	Number of Boys	Percentage*	Number of Girls	Percentage*	Total	Percentage*
1950-51	85,595	23.1	4,668	10.4	90,263	20.7
1951-52	93,423	22.4	5,381	10.6	98,804	21.1
1952-53	1,04,223	22.4	6,304	10.5	1,10,527	21.0
1953-54	1,14,150	21.7	6,955	10.2	1,21,105	20.4
1954-55	1,26,289	21.6	8,508	10.6	1,34,797	20.3
1955-56	1,39,736	22.2	9,218	9.9	1,48,994	20.6
1956-57	1,50,271	22.1	11,193	10.5	1,61,464	20.5
1957-58	1,68,522	23.3	13,901	11.5	1,82,153	21.6
1958-59	1,85,784	25.0	15,905	11.3	2,01,689	21.6
1959-60	2,15,740	25.0	22,342	14.0	2,38,083	23.3
1960-61	2,38,987	26.7	26,124	14.9	2,65,111	24.7

* The percentage shown is of the students pursuing professional course at College level from the total number of college students.

(Source : Naik, J.P. 'Some Papers on a National System of Education for India,1964).

The following Table[1] shows the growth of professional colleges in India during 1949-50 to 1960-61.

TABLE 70

Types of Colleges	1949-50		1960-61	
	No.of Colleges	No.of students (In Thousands)	No. of Colleges	No. of students (In Thousands)
Group I				
1. Agriculture	15	3.08	36	19.5
2. Arts and Crafts	-	-	-	-
3. Commerce	21	8.1	42	77.9
4. Engineering	23	9.4	66	43.4
5. Industrial Engineering	-	-	-	-
6. Forestry	4	0.3	3	0.6
7. Law	20	6.6	38	27.0
8. Medicine	35	11.7	133	40.3
9. Physical Education	5	0.1	20	0.9
10. Teacher Training	48	3.7	478	46.7
11. Technology	5	1.5	12	4.4
12. Veterinary Science	10	1.5	183	5.4
13. Others	-	-	3	1.7
Group B				
14. Fine Arts	9	0.9	54	6.3
15. Oriental Studies	54	3.9	101	9.3
16. Social Works	2	0.1	8	2.4
17. Others	1	0.2	35	51.5
Totals	252	51.8	852	295.5

[1](Source : Desai, D.M. 'Arvachin Bhartiya Kelavanino Vikas,' (Gujarati) 1964, p.584).

The following table shows the increase in number of professional and technical colleges for higher education in India from 1950-51 to 1965-66.[1]

TABLE 71

Year	No. of Professional and Technical Colleges
1950-51	208
1955-56	346
1960-61	852
1961-62	961
1962-63	1,073
1963-64	1,153
1964-65	2,616
1965-66	2,773

The table clearly indicates that from 1950 onwards there has been steady increase in the number of professional and technical colleges providing higher education. In 1951 the number was 208. In 1961, it increased to 961 i.e. more than four times increase. Again the number increased from 961 in 1961 to 2,773 in 1965 i.e. more than double in five years. This steady increase in number has continued after 1965 also.

Financial Aspects of Professional Education

It is obvious that the expenditure on professional or

[1]Source : India, 1970, p.70.

vocational education is always more than on other academic courses. In countries like West Germany, United Kingdom, France, U.S.A., U.S.S.R, the expenditure on vocational education has increased tremendously in the post war period. Though India has limited resources, she has given good emphasis on education in her Five-Year Plans. The expenditure on technical and engineering education has increased considerably after the Second Five Year Plan. The Sargent Committee has recommended to spend 6.27 of the expenditure on education for University and technical education. In 1946, the expenditure for university and technical education was 11.0 percent of the total budget in education. From this 11.0 percent 3.3 percent was spent on vocational and technical education. In the year 1951-52 Rs. 3.7 crores were allocated for technical and vocational education. This amount was increased to Rs. 4.4 crores in 1955-56. The following table shows the amount allocated for vocational and technical education in India in relation to other sectors during her 3 Five Year Plans.[1]

TABLE 72

Allocation of Funds for Vocational and Technical Education in India in Relation to other Sectors during Three Five Year Plans (Rupees in Crores)

Sector of Higher Studies	First Plan 1951-56		Second Plan 1956-61		Third Plan 1961-66	
	Rs. in Crores	Perce-ntage	Rs. in Crores	Perc-entage	Rs. in crores	Perc-entage
Arts, Science and Commerce	14	8.2	45	15.9	82	14.64
Engineering and Technology	9	5.3	22	7.8	76	13.57
Agriculture and Veternary	5	3.09	11	3.9	17	3.03
Medical	17	10.06	28	9.9	43	-
Total	45	26.20	106	37.5	218	31.24

(Source: University Grants Commission Report, 1962-63, p.10)

It is clear from this table that from 1951-66 the allocation of funds for engineering and technology has increased by eight and a half times; for Agriculture and Veterinary Science by three and a half times and for medical education two and a half times. In 1950-51 Rs. 79.2 were spent annually for a student receiving vocational or profession education, this amount was raised to 745.6 in 1955-56. In 1965-66, it must have gone still higher.

Development of Vocational Education at School Level

The British Government had almost failed in developing vocational education at school level. The secondary education imparted during the British period was bookish, informative and too academic. The fact remains that in the post-Independence period also, the Indian Government has not successfully developed a systematic and planned system of vocational education at school level. In industrially developed countries like West Germany and Japan, about 60 to 70 percent of the students enter vocational institutions at school level. In West Germany about 70 percent of the youth prefer vocational education at the end of primary or secondary education. In India hardly 20 percent of the pupils prefer vocational courses at secondary school stage.

The Education Commission has pointed out that in the next two decades of the country's developmental programme, the

need to get semi-skilled and skilled workers in all types of industry is a must. In order to get the adequately trained workers it is necessary that at some level the students be selected and be given a specialised training in newly mechanized skills. The Commission has also suggested that by 1985 nearly 20 percent of the schools at the lower secondary and 50 percent of them at the higher secondary be converted into vocational schools. This suggestion is no doubt a big forward leap in vocationalizing the secondary education but it is at the same time a challenging task.

It is important to note that on the recommendations of the Secondary Education Commission, The Indian Ministry of Education tried to reorient secondary education to meet the increasing demand of the industrially developing society by gradually extending the facilities for vocational and technical education through Multipurpose Schools, Technical Higher Secondary Schools or through Junior Technical Schools.

Basic Education

It may also be interesting to examine briefly the outcome of efforts in the past to introduce the teaching of crafts, agriculture and other practical subjects in schools. At the elementary stage, the biggest experiment made on a nation-wide scale was that of Basic Education. 'After a promising start, the enthusiasm for basic educafion steadily waned and although the

number of basic schools runs into thousands, these schools with a few notable exceptions, are not very different from the other elementary schools.'[1] When it was realised that it was not possible to convert all schools into basic schools, a programme was launched for the orientation of all elementary schools to the basic pattern by introducing in them some of the salient features of basic education. Even this limited effort has not met with desired success.

Only 32% of the total number of elementary schools were converted into basic schools by 1960-61. In spite of great efforts, this percentage could not be raised beyond 36[2] by the end of the Third Five Year Plan. It should be frankly confessed that the position of craft work in these schools is by and large unsatisfactory. The Indian people are yet to be educated in the value of craft and manual work as a vehicle of education. Though the basic education system is intrinsically sound, it has failed to make much headway in this country.'The fundamental idea that basic education is for life and through life, that it endeavours to create a social order free from exploitation and violence, and that its must be built round, to the extent possible, a Productive, Creative and Socially Useful Craft is still the core of the project.'[3] Perhaps lack of adequate preparation, inadequately trained teachers, dearth of teachers'

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[1] Planning Commission:'Report of the Working Group on Vocationalisation of Education and Work Experiences,'Government of India, New Delhi,1968,p.9.

[2] Ibid., p.33.

[3] Nurulla and Naik, 'A Students' History of Education in India.' Macmillan and Co. Ltd., Bombay, 1962,p.395.

guide books, insufficient equipment and above all an ill-informed and consequently unsympathetic administrative officers are some of the factors for the failure of this important and useful programme in education.

Multipurpose Schools

The enlightened proposal of the Secondary Education Commission to set up Multipurpose High Schools throughout the country was accepted by the Indian Government. This marked a significant milestone in the history of secondary education in India. Secondary education should not be considered as a stepping-stone for all the pupils. For the majority of them it should be preparation for life. According to the suggestions of the Secondary Education Commission, provision was to be made for teaching one of the several groups of subjects, viz. Humanities, Science, Agriculture, Commerce, Technical subjects, Fine Arts and Home Science, in addition to the core subjects for the secondary schools which were to be converted into Multipurpose schools. Of the total number of about 17,000 high and higher secondary schools, the number of multipurpose schools in 1960-61 was 2310 or 13.6 percent. This percentage was raised to 14.8 and their number to 3280. As regards diversified courses, the total number of courses available in 1960-61 was 5947 of which humanities, science and commerce courses constituted about 71 percent. The number of other

courses available was : Agriculture - 529 ; Technology - 372 ; Fine Arts - 286 ; Home Science - 207 ; and others such as construction group in U.P. 348[1].

But here again, the experience, by and large in respect of the teaching practical subjects, has been far from happy. The multipurpose schools are, in many cases, not properly staffed and equipped. The most serious defect, however, in the curriculum for these schools was that they did not provide adequate training either for entry to universities or to vocation. The time devoted to such skill-required courses almost remained the same as that of liberal subjects. At times the liberal subjects and the technical subjects remained equated in terms of time, teaching methods and examinations with the ultimate result that the technical courses were diluted to mere bookishness.[2] The teachers engaged to teach these subjects were theory oriented. It is said that most of these multipurpose schools failed to realise their objectives and remained at the grant-achieving level. In fact, the multi-dimensional approach of these schools receded into the background and the technical and agricultural courses fell into the routine-like work programme of schools. At times some Multipurpose schools were considered mere 'hobby houses' or

[1]Report of the Working Group on Vocationalisation of Education and Work Experience, 1968, p.34.

[2]Trivedi, R.S. 'Vocationalisation of Schools' in Quest in Education, Bombay, July 1967.

centres for 'further education' and not for preparing the students for their livelihood.

The Educational Survey Unit of National Institute of Education has pointed out that education being the State subject there is no uniformity either in the pattern of education or in the syllabus followed and multipurpose schools are no exception to this. In India, there are some States having only high schools system, some having only higher secondary system, some having both high and higher secondary systems, and only one State has high school with intermediate.[1] Hence the standards at which the diversification starts for multipurpose schools, and the duration of courses differ from State to State. It was also observed by the Survey Unit that there were disproportionately few books in the School Library for these diversified courses and at times they did not exceed 5 percent of all available books and that too most of the books were in English. The general equipment in most of these multipurpose schools also cannot be regarded as satisfactory.

Technical High Schools

Apart from multipurpose schools, there are technical high schools and junior technical schools which impart

[1]Educational Survey Unit, 'A Survey of High/Higher Secondary/Multipurpose Schools offering Technical(Engineering) Stream/Group/Subject Under Elective/Optional/Diversified Courses; National Institute of Education, NCERT,New Delhi,1968, p.11.

full time technical education for skilled workers. Both admit pupils after the primary stage and normally offer a three or four year course and training including workshop practice. Technical High Schools have attracted the attention in Gujarat and Maharashtra while Junior Technical High Schools have become popular in the State of Madhya Pradesh, Madras and West Bengal.

Although officially Junior Technical Schools were established in 1960, there were 10 schools which were functioning even earlier as either Vocational Schools or High Schools with Technical courses. In 1961-62 there were 50 Junior Technical Schools in India with 4178 pupils. This number was increased to 103 schools with 10,425 pupils in 1965-66. By the end of 1966, there were 106 Junior Technical Schools.

The fact that a good number of the pupils completing this education do not enter employment but rejoin the educational stream shows that they have not been completely successful in achieving their objectives. Training given in these schools is not entirely of a technical character and a significant number of the products of these schools join Polytechnics and other courses. From the available information it was found that a majority (more than 60 percent) of the pupils from these

schools join Polytechnics while about 28 percent go for apprenticeship and jobs. Only 1.7 percent seek entrance to pre-university course while about 6 percent go unemployed.

A Survey[1] conducted by the Planning Commission showed a high wastage rate in a number of Junior Technical Schools. This fact was confirmed by another Survey conducted by Educational Survey Unit in 1967, which made the following remarks :

> '30 percent of the entrants leave the course before completing the 1st year of the Junior Technical School. By the time a batch enters the IIIrd year of the course, about 40 percent of the total entrants either drop out or fail in the 1st or IInd year of the course. Only 60 percent of the remaining pupils in the final year complete successfully the course.'[2]

It is also interesting to note that the courses of Junior Schools attracted pupils mainly from the low and low or middle income groups. 61.8 percent of the pupils came from the families with an annual income of less than Rs.1,000[3]. Further, the occupation of 58.7 percent parents whose wards were studying in Junior Technical Schools were either labourers or agriculturalists.

Sometimes it is complained that the pupils receiving

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[1] Planning Commission', Factual Survey of Junior Technical Schools,' New Delhi, 1964.

[2] Educational Survey Unit. 'A Survey of Junior Technical Schools', National Institute of Education, NCERT, New Delhi, 1967, p.86.

[3] Ibid.

training in these technical schools do not have enough workshop practice. They lack adequate practical training in various engineering subjects. In Gujarat and Maharashtra only the Technical High Schools, which have been opened to train pupils in technical subjects exclusively, provide adequate workshop practice. The Multipurpose Schools with Technical stream in these States are mostly tagged to these Technical High Schools for instructional and workshop facilities.

Agricultural Schools

Though various Commissions and Committees stressed the need for Agricultural Colleges, Rural Universities and Research Centres for Agriculture, few of them came foreward with specific suggestions of agricultural education in schools. Yet almost all committees and commissions on education from 1853 and onwards including the Secondary Education Commission (1952-53) and Education Commission (1964-66) have stressed the need of vocationalisation of education at school level. Of course, there were some agricultural high schools before 1947 and there are many in the post Independence period, the admissions to such schools are rather very limited and the larger community has failed to take advantage of these schools.

At elementary school level, agriculture has been introduced as one of the primary crafts in junior and senior Basic Schools,

especially those located in rural areas. For example, in Uttar Pradesh alone in 1965, 52,654 junior basic schools (upto Class V) had adopted agriculture as the principal craft while 2,538 senior basic schools (upto class VIII) offered agriculture as a basic craft. Yet it was strange that at junior basic level no separate teacher for agriculture was provided. In Gujarat and Maharashtra also some primary schools have agriculture as a craft in rural areas.

At secondary school level there are agricultural schools to train practical agriculturalists in Maharashtra. In U.P. there were about 160 high schools offering agriculture as an optional subject in 1965. In Maharashtra there were 88 high schools, in Madhya Pradesh there were number of higher secondary schools and in Gujarat a few post-basic schools also offered agriculture as a subject. In 1960-61 there were about 2,000 Multipurpose Schools with agricultural stream. This number has not substantially increased later.

The Educational Survey Unit[1] made the following observations after its survey of Multipurpose Schools with Agricultural Stream :

1. In most of the States there was no choice for the pupils to offer the subjects within the agricultural group. Most of the subjects were compulsory.

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[1]Educational Survey Unit: Survey of High/Higher Secondary/ Multipurpose Schools offering Agriculture, Stream/Group/Subject under Elective/Optional/Diversified Course.' National Institute of Education, NCERT, New Delhi, 1968.

2. Not all the States had practical examinations in agriculture.

3. Few schools had separate laboratory facilities, and wherever there were, the equipments were rather very poor.

4. About 90 percent of the agricultural schools had farms with varying areas from 0.1 acre to 3.0 acres.

5. Among 637 high/higher secondary/multipurpose schools offering agricultural stream, only 86 i.e. 13.5 percent had poultry units, and 116 i.e. 18.2 percent had Dairy Units.

6. About 60 percent of the schools offering agricultural streams were located in rural areas and 90 percent of the pupils of these rural schools belonged to agricultural families.

7. Except in Kerala, Maharashtra and Punjab, in all other States, the demand for agricultural group from 1962 onwards is on gradual decline, particularly in rural areas.

8. On the whole, looking at the way the programme of agriculture as a vocational streams in the secondary schools, the course has belittled the expectations of many by merely theorising the course without adequate practical training. 'The trainees on their part who were expected to go and work in their farms applying the scientific knowledge gained by them in improved modern methods of agriculture, have instead joined various services rather than go back to the fields.' This remark is a sufficient proof to show that these courses in Multipurpose Schools have failed to make any impact on our students who are traditionally 'service-minded.'

Growth of Vocational and Technical School Education in India from 1950-51 to 1965-66

Since 1950, considerable progress is made in vocational school education in India. The following table shows the number of institutions, enrolment therein, teachers and expenditure on vocational and technical school education. The vocational institutions include schools for agriculture, arts and crafts, commerce, engineering, forestry, medicine, physical education, teachers' training, veterinary science, polytechnics and others.

Growth of Vocational and Technical School Education

The Number of Institutions, Enrolment there in, Teachers and Expenditure on Vocational and Technical School Education

TABLE 73

Year	No. of Institutions	No. of students on rolls	No. of teachers	Direct Expenditure (Rs. Crores)
1950-51	2,339	1,87,194	11,598	3.69
1955-56	3,074	2,62,462	16,597	5.45
1960-61	4,145	4,01,274	27,152	11.41
1961-62	3,751	4,08,443	28,857	12.80
1962-63	3,846	4,24,264	29,849	13.04
1963-64	4,137	4,57,350	33,494	16.24
1964-65*	3,147	2,69,096	17,380	7.29
1965-66*	2,776	2,47,910	17,785	8.13

(Source: 'India', 1970, p.67.)

*From 1964-65 a new classification of institutions has been introduced. Institutions like school of music, dancing, other Fine Arts, Social Work etc. which were formerly included under special education are now being classified under vocational/ Professional education.

The following table indicates the progress of special school education (School for Music, Dancing, other Fine Arts, Social Works etc.) Between 1950-51 and 1965-66.

TABLE 74

Special School Education[1] (1950-51 to 1965-66)

Year	No. of Institutions	No. of students	No. of Teachers	Direct Expenditure (Rs. Crores)
1950-51	52,813	1404,443	16,686	2.33
1955-56	50,987	14,87,878	20,611	2.65
1960-61	67,084	16,89,651	31,699	3.20
1961-62	2,50,434	26,25,997	34,224	3.46
1962-63	2,68,557	22,67,689	31,011	3.38
1963-64	2,16,566	19,50,411	28,386	3.40
1964-65	2,59,392	23,46,279	26,852	2.30
1965-66 (Provisional)	2,21,065	17,87,507	28,756	2.48

Under the Fourth Five Year Plan, the major task in the field of vocational school education will be a large variety of vocational courses and training for pupils who do not desire to continue their general education beyond elementary stage or secondary stage. The industrial training institutions will have to come forward to meet atleast a part of this demand. Of course, new courses were already

Source: 'India', 1970, p.67.

provided in industrial training institutes (I.T.Is.), polytechnics, schools for nursing, agricultural schools, multipurpose schools and other vocational schools. A planned and systematic development is needed. A survey of nearby industries, crafts centres and agricultural agencies should be conducted to ascertain the local needs, and only such trade courses should be provided that suit the local population. The vocational school should ultimately cater to the needs of the nearby villages.

Some interesting statistics indicating expansion and growth of Schools for Vocational Education in India in 1953-54 and 1963-64.[1]

TABLE 75

Schools for Vocational Education in India

(1953-54 and 1963-64)

	1953-54	1963-64
1. Number of Institutions :		
For Boys	1,979	3,085
For Girls	620	1,052
2. Number of Students :		
Boys	1,53,127	3,58,654
Girls	54,469	98,696
3. Number of Teachers :		
Men	10,460	28,521
Women	2,540	4,973
4. Expenditure (in Rupees)	4,04,91,343	16,23,73,518
5. Average annual cost per Pupil (Rupees)	195.0	355.0

[1]Ministry of Education. 'Education in India, 1953-54', Vol.2, Government of India, New Delhi, 1958, pp.1-5.; 1963-64, Vol.2, pp.1-5.

- The table clearly indicates that the number of Institutions, the number of students and the number of teachers (both for boys and girls) have almost doubled in the period of 10 years from 1953-54 to 1963-64.
- The total expenditure on vocational school education has increased almost four times more during this period.

The number of institutions and the types of management of schools for vocational education in India in 1953-64 and 1963-64 have been given in the tables on the succeeding pages.

TABLE 76

Number of Institutions and Types of Management of Schools for Vocational Education in 1953-54 and 1963-64

Types of Schools for Vocational Education	Number of Institutions Managed by												Grand Total	
	Central Govt.		State Govt.		Dist.Boards		Muni.Boards		Pvt.Aided		Pvt.Unaided			
	53-54	63-64	53-54	63-64	53-54	63-64	53-54	63-64	53-54	63-64	53-54	63-64	53-54	63-64
1.Agriculture :														
For Boys	-	1	34	96	1	-	-	-	2	18	-	-	37	115
For Girls	-	1	-	-	-	-	-	-	1	2	-	-	1	3
											Total		38	118
2.Commerce :														
For Boys	-	-	7	11	-	6	-	-	101	68	652	828	760	913
For Girls	-	1	-	-	-	-	-	-	2	1	3	-	5	2
											Total		765	915
3.Engineering :														
For Boys	-	5	21*	196	-	-	-	-	14	85	2	4	37	290
For Girls	-	12	-	-	-	-	-	-	-	3	-	-	-	15
											Total		37	305
4.Forestry :														
For Boys	-	-	5	8	-	-	-	-	-	-	-	-	5	8
Eor Girls	-	-	-	-	-	-	-	-	-	-	-	-	-	-
											Total		5	8
5.Marine Training :														
For Boys	2	4	-	-	-	-	-	-	-	1	-	-	2	5
For Girls	-	-	-	-	-	-	-	-	-	-	-	-	-	-
											Total		2	5

* Includes 3 Survey Schools also.

(continued)

(Continued)

Types of Schools for Vocational Education	Number of Institutions Managed by												Grand Total	
	Central Govt.		State Govt.		Dist.Boards		Muni.Boards		Pvt.Aided		Pvt. Unaided			
	53-54	63-64	53-54	63-64	53-54	63-64	53-54	63-64	53-54	63-64	53-54	63-64	53-54	63-64
6.Medicine :														
For Boys	-	-	7	19	-	-	-	-	4	25	5	6	16	50
For Girls	2	-	23	96	-	-	5	3	10	31	19	10	59	140
											Total		75	190
7. Physical Education:														
For Boys	-	-	-	1	-	-	-	-	10	44	7	-	17	45
For Girls	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8. Teachers' Training :														
Basic Boys	-	-	204	488	-	-	-	1	19	154	19	29	242	672
Basic Girls	-	-	31	92	-	-	1	2	22	75	-	8	54	177
											Total		296	349
9, Teachers' Training :														
Non-Basic Boys	-	1	163	122	10	-	1	1	151	59	16	2	341	185
" Girls	-	-	46	35	-	-	1	-	116	33	8	3	171	71
											Total		512	256
10. Technology - Polytechnic:														
For Boys	2	-	33	44	-	-	1	-	10	8	-	-	46	52
For Girls	-	-	-	3	-	-	-	-	-	-	-	-	-	3
											Total		46	55
11.Technical, Industrial, Arts & Craft														
For Boys	6	1	159	434	12	3	8	1	246	222	44	61	475	722
For Girls	2	-	17	92	1	-	3	2	252	376	55	139	430	690
											Total		906	1331

(continued)

Types of Schools for Vocational Education	Number of Institutions Managed by												Grand Total	
	Central Govt.		State Govt.		Dist.Boards		Muni.Boards		Pvt.Aided		Pvt.unaided			
	53-54	63-64	53-54	63-64	53-54	63-64	53-54	63-64	53-54	63-64	53-54	63-64	53-54	63-64
12.Veterinary Science:														
For Boys	-	6	-	-	-	-	-	-	-	-	-	-	-	6
For Girls	-	-	-	-	-	-	-	-	-	-	-	-	-	-
												Total	-	6
13.Others :														
For Boys	1	2	-	9	-	-	-	-	-	11	-	-	1	22
For Girls	-	-	-	-	-	-	-	-	-	-				
												Total	1	22
Total	15	-	750		24		20		960		830		2599	4137

(Source: Ministry of Education, 'Education in India (1953-54 and 1963-64.

TABLE 77

Expenditure on Various Vocational Schools in India

1953-54 and 1963-64

Type of Institutions : Vocational Schools in -	Total Direct Expenditure	
	1953-54	1963-64
1. Agriculture	15,28,663	65,56,697
2. Commerce	24,80,559	35,60,218
3. Engineering/Technology	1,00,41,640	6,71,75,986
4. Forestry	1,01,278	2,28,751
5. Marine Training	6,28,952	20,10,675
6. Medicine and Veterinary Science	18,27,779	59,45,857
7. Physical Education	2,09,464	7,71,619
8. Teachers' Training Basic	80,66,473	3,13,63,794
9. Teachers' Training - Non-Basic	87,71,248	44,08,934
10. Technical/Industrial/ Art and Crafts	64,10,665	3,87,49,842
11. Others	4,24,823	16,01,245
Total	4,04,91,343	16,23,73,518

(Source: Ministry of Education: 'Education in India', 1953-54 and 1963-64).

TABLE 78

Number of Teachers in Schools for Vocational Education in India in 1953-54 and 1963-64

Type of Institutions (Vocational Schools)	No. of Teachers Possessing Degrees		No. of Teachers Possessing Diplomas or Certificates		No. of teachers without degrees or diplomas		Grand Total	
	1953-54	1963-64	1953-54	1963-64	1953-54	1963-64	1953-54	1963-64
1. Agriculture	121	498	62	255	23	36	206	789
2. Commerce	386	669	1425	1634	227	209	2038	2512
3. Engineering	220	3047	232	5514	123	1022	575	9583
4. Forestry	3	2	6	12	-	1	9	15
5. Marine Training	10	17	10	16	-	13	20	46
6. Medicine and Veterinary Science	318	810	182	588	3	35	504	1333
7. Physical Education	25	103	42	143	7	4	74	250
8. Teachers' Training - Basic	1257	5525	704	2159	159	350	2120	8034
9. Teachers' Training - non-Basic	1675	586	1329	646	190	83	3194	1315
10. Technical/Industrial/ Arts and Craft	541	1037	2833	6918	847	1470	4221	9425
11. Others	1	94	38	82	-	16	39	192
Total	4557	12,288	6,863	17,967	1,680	3,239	13,000	33,494

(Source: Ministry of Education, 'Education in India', 1953-54 and 1963-64.)