

FRAMEWORK
FOR
IMPLEMENTATION
OF
EDUCATIONAL REFORMS
IN
PUNJAB

SECTION II EDUCATIONAL STRUCTURE, PROCESSES, CONTENT INCLUDING
VOCATIONAL EDUCATION, EVALUATION, SPECIAL SCHEMES AND
STRATEGIES FOR IMPLEMENTATION

EDUCATION REFORMS COMMISSION, PUNJAB, 1935

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17-B, Sri Aurobindo Marg, New Delhi-110016
DOC. No. 2910
Date 13/5/82

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CHAPTER IV

EDUCATIONAL STRUCTURE (10+2+3)

4.01. The structure of education in any educational system conveys something more than merely a concept in terms of setting time limits for educational preparation at different levels. Each level of education has to be characteristic of the pupil's developmental stage. It has implications for the nature and content of courses. Further, the courses of study need to be formulated, keeping in view the aspirations of the people; national ideals and goals, availability of physical and infra-structural facilities and their programmed utilisation. To suggest purposeful changes in the educational system, therefore, various Commissions, Committees, Panels, Seminars, Groups etc. have looked into the pertinent issue of the structural reorganisation of education over the years.

educational structures

4.02. In 1919, the Sadler Commission observed that the dividing line between the Higher Education and Secondary Courses needs to be drawn more precisely at the level of the intermediate examination i.e. after 12 years of schooling. The Tara Chand Committee later in 1949 also supported 12 years of schooling. Historical Review.

4.03. The Cice-Chancellors' Conference (1961), the Sampurnanand Committee on Emotional Integration (1961-62), the Fourth Vice-Chancellors' Conference, 1962, the report of the Conference of State Education Ministers, Vice-Chancellors and Eminent Educationists 1963; and the Seventh Conference of State Education Ministers, 1964—all re-affirmed the acceptance of the model of 12 years' schooling followed by a 3 years' Degree Course. The U.G.C. Committee on Colleges in 1965 also recommended that the schools for the pre-university courses should extend for at least 12 years.

4.04. The Education System in India was again reviewed in its totality by the Education Commission (1964-66) which, after examining the situation from all points of view, concluded that, on sound academic considerations, it would be highly desirable to adopt a uniform pattern of 10+2+3 for School and College classes in all parts of the country.

4.05. The Tenth Conference of State Education Ministers, 1967, endorsed the recommendations of the Education Commission and stressed that :

- (a) the educational structure should have the pattern of 10+2+3, and
- (b) the 10 year schooling should be adopted in all States, and two years be designated as the

Higher Secondary Stage and three years for the First Degree Course.

National Policy
Direction,

4.06. In 1968, the Government of India's Resolution on a National Policy on Education finally approved the 10+2+3 pattern, and suggested that THE HIGHER SECONDARY STAGE OF TWO YEARS BE LOCATED IN SCHOOLS, COLLEGES, OR BOTH ACCORDING TO LOCAL CONDITIONS. The duration of the course for the first degree in Arts, Commerce and Science should be three years after 12 years of schooling.

4.07. The Conference of Education Secretaries and Directors of Public Instruction, 1972, passed a resolution recommending :

- (a) uniform pattern of Education of 15 years' duration leading to the First Degree to be adopted by all the States ; and
- (b) adoption of 10+2+3 uniform pattern of School and College Education.

The recommendations of the Conference of Education Secretaries and Directors of Public Instruction were endorsed by the Central Advisory Board of Education in its 13th session held in September, 1972, in New Delhi.

4.08. The National Committee on the 10+2+3 Educational Structure, 1972, appointed by the Government of India to advise the pattern of 10+2+3 put the final seal of approval, and cited the example of many advanced countries of the world to strengthen its view-point.

University
Courses.

4.09. In 1974 the U.G.C., at its meeting held in December, further considered the question of the pattern of education. It was in agreement with the views of the Central Advisory Board of Education and pointed out that where Universities desired to have two years' pass course in the pattern of 10+2+3 years, the colleges should be selected on the basis of facilities and standards both for the general pass course of two years' duration and the Honours Course of three years' duration for the first degree.

4.10. In view of the overwhelming importance of this matter the Central Board of Secondary Education set up a special committee to suggest ways and means to implement the new pattern. The Committee favoured the introduction of 10+2+3 beginning with Class IX, with the admissions of 1975.

4.11. The Draft National Policy formulated in 1979 divided the span of Secondary Education into lower Secondary

and upper Secondary, but accepted 12 years of schooling, followed by three years in a College/University leading to the First Graduate Degree. IT WAS POINTED OUT SPECIALLY IN THE POLICY THAT IF A UNIVERSITY SO DESIRES, IT CAN HAVE A TWO YEARS' PASS AND THREE YEARS' HONOURS COURSE.

4.12. From the above review it is evident that the 10+2+3 pattern of education has been accepted in principle by all States in India and has actually been launched in some States and Union Territories and almost in all the Central Schools spread all over the country. It would appear, therefore, that the issue before us is not whether the 10+2+3 pattern of education should be accepted as the national pattern of education but what are the modalities to be adopted for its implementation. Implementation Strategies.

4.13. The Commission has examined this problem in depth and has come to the conclusion that while Punjab must conform to the national pattern of education i.e. 10+2+3, its implementation requires detailed planning and preparation. In the national pattern of education the Plus 2 stage is the innovative link, for which considerable preparation is needed. Unless this is done, there are very many chances of its failure. This is borne out by the experience of many other States.

4.14. We already have some experience at ten years' schooling. It has been with us for many years. The Education Commission of 1964—66 has made recommendations to drastically change its aims and content, which we strongly support, but these changes can only be brought about in a phased manner over a period of time, for which separate recommendations will be made. Similarly, we have also some experience of the three years' university courses. Though these courses, with which we are familiar, do not fulfil the needs of our society, and require careful revamping, that also can only be done over a period of time in a phased manner for which we already have the required mechanism in our universities. Plus 2 an Innovative Link.

4.15. On the other hand, we have no such experience of the Plus 2 stage which could provide us with a framework within which we could quickly begin operations. The Plus 2 stage is a complete innovation with entirely different but well defined objectives and content. It is not a mere lengthening of the preparation for the tertiary stage. In that case the pattern would have been formulated as 10+3, which seems to be the interpretation given to it in many quarters.

4.16. The reorganisation of the Educational Structure, as recommended by the Education Commission, was guided primarily by the following considerations :—

- Uniformity of pattern to minimise disparities and co-ordinate and maintain standards.

- Preparation for tertiary education both in the Academic and the Vocational Stream
- Providing two streams, namely, the academic and the vocational, at the Plus 2 stage.
- Providing a special stage for any horizontal mobility.
- Providing adequate and distinct stages, and an opportunity at each stage, to modernise and strengthen the school and college curriculum and thus raise the general standards and quality of education comparable to educational standards in other countries.
- Raising the educational standards at the tertiary level by lengthening the duration of schooling and preparation for higher education.

4.17. In accepting the introduction of the 10+2+3 pattern of education lies a strong faith in its potentiality for building a strong and modern society through the powerful agency of education. It is argued, and rightly so that if the entry level of all students wishing to go in for Higher Education is raised, the standards at the tertiary level both in the universities and colleges of further education would go higher.

4.18. There is also a strong faith that education is not merely academic preparation, but something more. Guided by this conviction, the concept of work (experience/socially useful productive work) has found a firm place among the curricular activities of the school going students till they complete 12 years of schooling.

4.19. It is also based on the belief that general education, up to the tenth class should be uniform and with a minimum amount of diversification. The Plus 2 stage has been conceptualised as a stage for experimentation with different options available to the students and should, therefore, provide for horizontal mobility not only within its academic streams but also between the academic and vocational streams.

Diversification
at Plus 2
stage.

4.20. In the absence of adequate facilities for diversification at the Plus 2 stage, the colleges and universities of General Education in India have been experiencing an unprecedented crowding of directionless students, with no specific goals, to pursue higher education. The result is that huge amounts of funds are diverted for the expansion of educational facilities at the cost of quality education and at a level which cannot equip a large majority for gainful employment.

4.21. The basic gain visualised in the acceptance of the 10+2+3 pattern is the diversification of courses for syphoning

off the highly academically motivated students into one stream and equally highly vocationally motivated students into another. The diversification here is not intended to establish the superiority of the academic over the vocational courses or the intellectual superiority of those going in for the pursuit of academic knowledge over the others following the vocational streams. Depending upon capacity, interest and aptitude, a student is led to opt for either of the two. This is bound to minimise wastage and stagnation, reduce unemployment, develop confidence in the youth and prepare them for appropriate roles in the development of our economy. Once 50 per cent of the students at the Plus 2 stage get syphoned into vocational courses, the crowds aspiring to join universities, in the absence of avenues of suitable employment, would start thinning out and the resources of the universities in terms of men and material can be utilised optimally with a multiple effect in respect of students.

4.22. Some of the salient characteristic which confirm our faith in implementing the new structure, besides the basic advantage of strengthening the school and the university system, are indicated below :

- The plus 2 stage gives flexibility to allow the student to transfer from one stream to another in case he changes his mind after some time.
- It strengthens the school stage, as it brings in better teachers with enriched courses at the tertiary level.
- It ensures greater continuity of educational experience from one stage to another.
- It provides society with personnel with a wide spectrum of knowledge and training for its developmental needs.
- It encourages creativity and gaining of experience through practical and productive activities.
- It prepares an individual to understand the social reality and raises his potentials within the framework of economic development to which the individual contributes.
- Diversification at the Plus 2 stage would provide us with a balanced system of education for the supply of personnel both for the higher administrative and professional levels, middle level manpower trained in specific competencies (Para-Medical, Technical etc.) and skilled and semi-skilled craftsmen at the lower level.

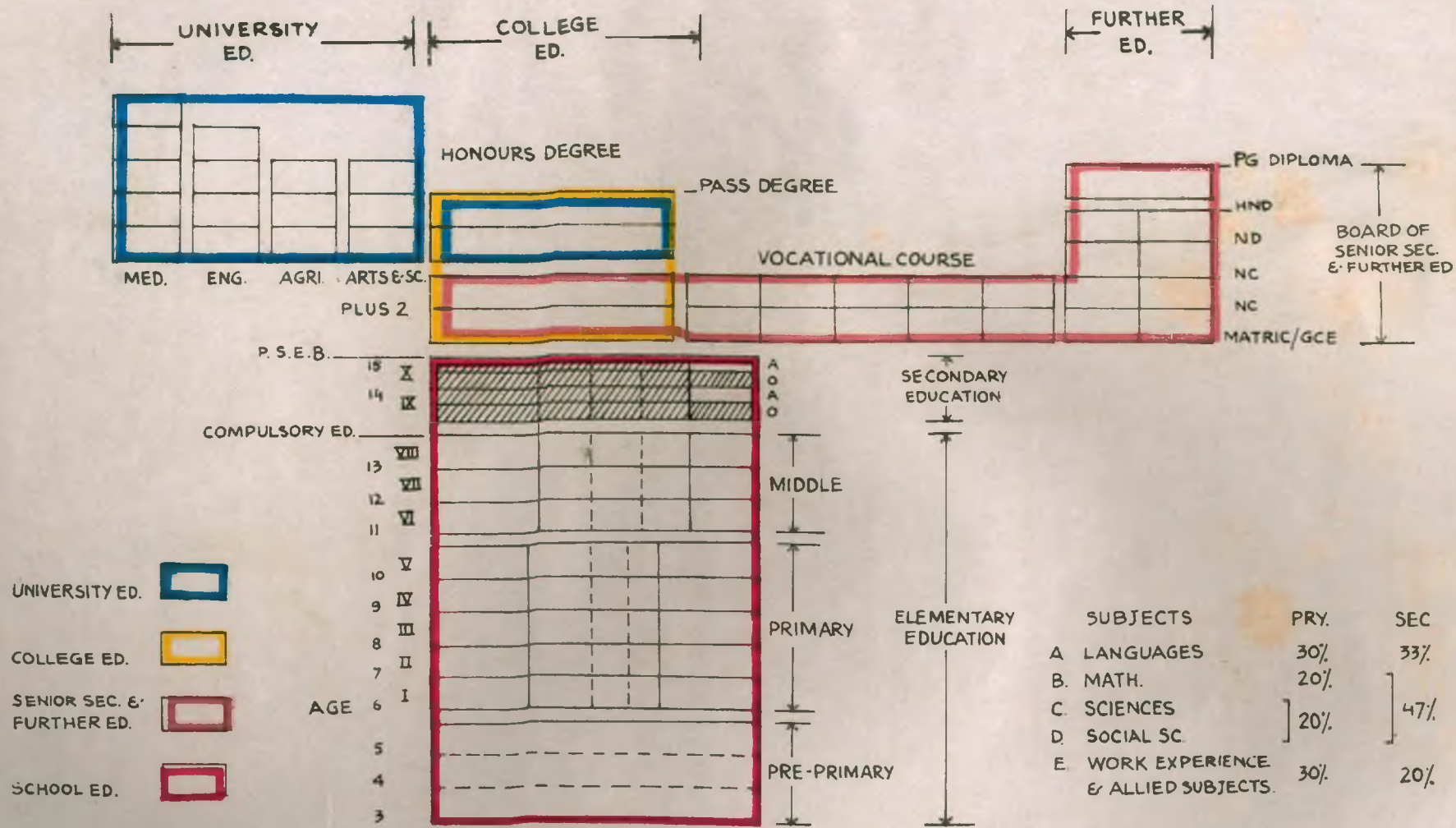


DIAGRAM 4 I

PROPOSED EDUCATIONAL STRUCTURE

The proposed structure of 10+2+3, as recommended by the Education Commission (1964—66), would include 10 years of schooling consisting of 8 years of elementary education and 2 years of lower secondary, preceded by 1—3 years of pre-primary education. The eight years of elementary education would be further divided into 5 years of primary and 3 years of what is known as the middle stage in Punjab.

Proposed pattern
of Educational
Structure.

4.23. We are inclined to accept the existing break-up of 10 years of schooling into 5+3+2. It is administratively convenient in the present context and is psychologically justified. The age of 6 to 11 is characteristic of concrete thought in the child's development, which is followed by formal thought, roughly covering the age group at the middle school stage. This break-up also meets the constitutional requirement of compulsory education for the age-group 6—14 years i.e. up to the middle school stage that will mark the completion of education for those who, for one reason or the other, opt for settling down in life and taking up some form of employment. We are not in favour of recommending any specialization during this stage, as it would be too early an age to begin special studies or training for developing any skills.

Elementary
Education.

4.24. Elementary Education would be followed by 4 years of secondary education consisting of 2 years of general education called the lower secondary stage up to matriculation and 2 years of senior secondary education leading to a Certificate of Senior Secondary Education which will enable pupils to pursue studies in the tertiary system either in the universities or colleges of further education.

Secondary
Education.

4.25. The 2 years of Senior Secondary Education, popularly known as the Plus 2 stage, are crucial for syphoning the students pursuing higher studies into academic and vocational courses. Diversification of courses should take place here for the first time. There will be two clear cut streams at this level—academic and vocational.

4.26. We are not recommending any bridge courses for horizontal mobility in the initial stages of the introduction of diversified courses at the +2 stage, should the student of one stream decide to leave it in between and change over to the other. Theoretically, it may sound plausible to allow flexibility in the system but in reality it does not work, especially in the face of financial constraints and the lack of infrastructural facilities. We believe that by that time the pupils should have reached a stage of maturity which will enable them to make a judicious choice as to what stream suits them. The Counsellors can also be of help to make pupils conscious of their potential and place them in a situation whereby they can make a judicious choice. We strongly recommend the strengthening of counselling in the school system at the elementary and secondary stages as a basic element of upgrading standards. However, by organising courses at the Senior Secondary level on a

modular basis we can build in some flexibility, so that by carrying his credit for relevant courses already taken by him he may save time, and we can allow horizontal mobility in case he desires to do so.

4.27. The success of the Plus 2 stage would largely depend upon how carefully the courses have been planned and how they lead to further education. **THE COURSES AT THIS STAGE HAVE TO BE STRUCTURED ON A MODULAR BASIS WITH CONTINUOUS ASSESSMENT FOR CUMULATIVE GRADES TO PROVIDE FOR BOTH HORIZONTAL AND VERTICAL MODALITY** for the success of our educational process. It would appear to us that the option open to the academically motivated students after completing their senior secondary in the academic stream will be one of the following:—

- (a) A programme of 2 years' pass degree course.
- (b) A programme of 3 years' honours degree course at the university or a college with facilities for post-graduate courses.
- (c) First degree programme in professional colleges/institutes.

**University
Education.**

4.28. We recommend that there be two streams of courses at the first degree level, at least for the next decade or so, as an interim measure. This should help us tide over the present problem of the sudden expansion of our degree programmes, which would not be economically feasible. On the other hand, it is hoped that this step will help in reducing the unwanted rush of students for higher courses and that only deserving students will opt for honours courses.

4.29. However, to provide flexibility in the system it is suggested that provision should be made for such students as may wish to continue their studies after having obtained their pass degree to join college for another year, where facilities exist, to complete the honours programme. This, however, implies that the courses for the pass and honours degree for the first 2 years will have to be common. Of course, there are arguments for and against such a proposal which are academically weighty and well known. We have considered this matter in detail, and have come to the conclusion that, as an interim measure, this will be a sound policy. Educational ingenuity should be able to overcome the academic problems arising out of this situation. Provision for offering courses of functional utility with a vocational bias should be made for those who wish to end up their education with a Pass Degree and have no intention of pursuing further studies.

**Further
Education.
Courses.**

4.30. On the other hand, the options open to the vocationally motivated students after the completion of their senior secondary education in the vocational stream will be to

find gainful employment in the economy or be self-employed in vocations of their choice. If, however, a student wishes to continue his education in the tertiary sector, we recommend the following:—

- (a) It should be possible for him to pursue Technicians' courses in his chosen vocation at the higher level in polytechnics for the award of the National Diploma.
- (b) After completing his studies for the National Diploma or even straight after higher secondary i.e. (National Certificate) he could pursue his studies for the Higher National Diploma in Polytechnics or Colleges of further education. (This Diploma should be equated to the first degree level of the Universities on the vocational side).

4.31. Facilities for further education on the vocational side in the tertiary sector have not been developed to any reasonable extent. Some courses at the National Diploma level do exist in some areas in the polytechnics and some specialized institutions. But these are totally inadequate and need enrichment and diversification. We have given very serious thought to this problem, and have reached the conclusion that unless this limb of our tertiary system is properly organised, no reforms in our educational system will be sufficiently effective to reduce unemployment and frustration. We strongly recommend that further education at the tertiary level on the vocational side should be given the highest priority.

Facilities
for further
Education.

4.32. Post-graduate education in our State, as in the rest of the country, is generally located in university departments. Some colleges with adequate facilities also run post-graduate courses, but these are by and large few. By tradition these courses in this country as well as abroad are of 2 years' duration for the master's degree after the first degree in the university. We have already argued that for conformity to international standards the first degree should be an honours degree after the 15 years of education. The research degree should take a minimum of 3 years' work after the master's degree, or more, depending upon the nature of the research project. Recently, on account of certain special circumstances, and recognizing the need under some special conditions, a degree known as Master of Philosophy (M.Phil) in between the master's and Ph.D. has been accepted. It is not truly a research degree but a further extension of the master programme to enable the recipients to widen their sphere of knowledge for more efficient functioning as teachers and research scholars.

Post-graduate
Education.

4.33. This allocation of time for the various levels of education has stood the test of time in this country. These

allotments of time are very similar to the schedule accepted by some universities abroad. As they have served us satisfactorily so far, we see no reason to suggest any changes in the structure or the time schedule. In fact, conforming to an international pattern at this level has many advantages, and we should gain by conforming to it.

4.34. Post-graduate courses in professional subjects conform to their own pattern evolved in response to their own needs and worked out after a great deal of thought and experience. They should not, therefore, be disturbed. Structure and standards at this level of education should only be changed after very mature consideration. The university structure permits for effecting such changes a mechanism which is adequate, and should be used for this purpose.

4.35. We have, in Punjab, the following pattern of education at the post-matric level:—

Present
Pattern of
Education.
(Post-School
Level).

- Higher Secondary system followed by 3 years of First Degree Course in Colleges (that is 11+3).
- Pre-University Courses after matriculation followed by three years for the first degree (10+1+3).
- Pre-Engineering/Pre-Medical followed by two years of education in a college leading to the first Academic Degree (10+2+2).
- 10+2+2 (for Kendriya Vidyalaya students). Punjab University, however, has only recently accepted the equivalence of Plus 2 of the Central Board of Secondary Education to Pre-Engineering/Pre-Medical/First Year of the three-year Degree Course.
- Honours Schools system (10+2+3).

Under the first pattern the students, after completing 10 years of schooling and earning a High School Certificate, join a Higher Secondary School for one additional year, to obtain a High Secondary Certificate. The examination is conducted by the Punjab School Education Board, and is common to all streams.

4.36. The Pre-University, Pre-Engineering/Pre-Medical channels are open only in colleges affiliated to different universities in the State. The last structural adaptation takes place only for such students as get their plus two certificates from the Central Board of Secondary Education (Kendriya Vidyalaya). In this way there are at least two channels:—

- (a) Higher Secondary and
- (b) Colleges which are preparatory to Degree Education.

4.37. The total number of Higher Secondary Schools in Punjab is 244 (110 Government and 134 Private). Some educational institutions are run by private managements but the Government provides a financial grant under the grant-in-aid system and meets 95 per cent of the revenue deficit. The statistics for 1983 reveal that 28,279 students were enrolled in 244 Higher Secondary Schools of Punjab and 38,921 students were enrolled in the Pre-University class in 164 colleges affiliated to the three Universities. The statistics reveal that at the plus one stage the schools are less popular as compared to the colleges. It will be desirable at this stage to think of strengthening the plus 2 after a judicious scrutiny of the facilities available and the facilities required in case of different possibilities of starting the courses.

4.38. The first choice will obviously fall in favour of starting plus 2 classes in the schools. This will mean that additional facilities will have to be created for about 39 thousand students in the schools during one year, which will almost be doubled when both the classes get started/attached. That will mean additional buildings, additional equipment, enrichment of libraries, additional laboratories for Physics, Chemistry and Biology, recruitment of staff etc. On the other hand, the colleges which exclusively run a three-year degree course, in the event of losing the Pre-University and the first year of TDC or Pre-Engineering/Pre-Medical, will be placed in an awkward situation and most of the faculty positions in such colleges will have to be declared redundant and most of the physical facilities will remain unutilised or under-utilised.

Alternatives
before us.

4.39. The other alternative may be that Plus 2 is started only in colleges against the general consensus of attaching these classes to the schools. In this case 244 Higher Secondary Schools will have to be downgraded into High Schools and some of the staff and the physical facilities will also remain unutilised or under-utilised.

4.40. In order to have a balance and not deviate from the recommendations made by the Education Commission, and subsequently supported by various other panels and the UGC, it would be better to maintain the Plus 2 stage in both schools and colleges. Right away 244 Higher Secondary Schools existing in the state can be upgraded for the teaching of Plus 2 in the general stream and the colleges that are already existing may continue with the teaching at the Plus 2 stage.

Our choice.

4.41. It may not be possible for all the existing colleges to go in for a three-year degree programme due to inadequate physical facilities and shortage of staff.

4.42. In future, the colleges that switch over to the three-year degree programme, as against the two-year pass course, may, perhaps, not be required to do teaching at the

Plus 2 stage, and it will be a two-way course of implementation. In one case, the colleges will be upgraded for the teaching of the three-year Degree Course, and in another situation, the schools will be upgraded to accommodate students at the Plus 2 withdrawn from such colleges.

4.43. The Commission, having considered this situation in detail, has come to the view that the only feasible way of implementing the Plus 2 stage expeditiously and economically without causing much disruption is to locate it both in colleges and schools wherever adequate facilities for implementing this stage exist. Though ultimately it may be desirable to locate it in the schools as a part of the school stage, this objective can be phased out over a period of 10—15 years. This can be achieved, as indicated above, by upgrading some of the colleges for the three-year Degree Course and Post-Graduate activities as and when facilities for the same can be provided and the courses enriched. Then they would want to shed off the courses at the Senior Secondary level, which can be passed on to High Schools with potential growth and by providing adequate facilities there.

Implications of our choice.

4.44. We are inclined to recommend that the Three-Year Degree Programme may be allowed to be run by only such colleges as have enriched physical facilities or have the potential for raising such facilities in the event of their opting for a Three-Year Programme. The other colleges may simultaneously run a Two Year Programme. There will be thus two streams, as already pointed out, in the Degree Courses at least for another decade or so :

1. Three-Year Degree Programme leading to Honours Graduate Degree and
2. Two-Year Degree Programme leading to Pass Course Degree.

4.45. We are not averse to the idea of having educational institutions exclusively for the Plus 2 stage, just as there used to be Intermediate Colleges or Junior Colleges. This step we are suggesting for implementation in those existing colleges where the number of students in the Graduate Course is very low. This arrangement may, perhaps, also help such colleges by adding some vocational courses, which would make such institutions economically more viable.

Ensuring uniformity of standards.

4.46. At this stage, however, it needs to be pointed out that our present system of preparation for the University stage suffers from a basic weakness. The students coming via the Higher Secondary Stream and those from the colleges do not follow the same curriculum, nor do they take the same examinations. This creates many problems of standards and equivalence.

4.47. Before introducing the Plus 2 stage it will be necessary to ensure that the courses of study followed by the students at the Plus 2 level are the same irrespective of where the courses are located, whether in Higher Secondary Schools or Colleges, and that they take the same examination. This will help us to overcome the present distortions in the system.

4.48. The alternatives indicated and their location discussed above are only for the academic option. The Plus 2 stage has another very important component—the vocational option. The two, taken together, constitute the Plus 2 stage. Without organising the vocational stream simultaneously with the academic stream we are not likely to achieve our objective of diversification envisaged by the Education Commission of 1964—66, at this stage, as we shall not be able to offer any alternative to the general education courses, and the pressure on the Universities will persist along with all the frustrations of an aimless education.

Plus 2 and
Vocational
Courses.

4.49. For the simultaneous development of the vocational stream we have to think of various other strategies, which could be as follows :—

- The Vocational Courses offered up-to-date could be grouped together into 6 indifferent areas as under :

(1) Engineering Trades	}	: Group-I
(2) Para-Medical Trades		
(3) Agriculture	}	Group-II
(4) Home Sciences		
(5) Business and Commerce		
(6) Miscellaneous		

- These could be categorised into 2 broad divisions. Those requiring special institutional facilities, as in the case of Engineering and Para-Medical Trades mentioned as items (1) and (2) above and, to some extent, Agriculture; and the rest of the trades mentioned above.
- It will be impracticable and too ambitious a proposition to provide vocational courses in all these areas in every school and college offering courses at the Plus 2 stage, on account of economic constraints.
- Necessarily, the existing specialised institutions, such as Polytechnics, I.T.I's, hospitals and agricultural universities which cater for some middle

level courses, will need to be utilised with strengthened, modified and updated programmes made relevant to the emerging socio-economic needs.

- For the foundation courses, however, either a separate faculty would need to be recruited in such institutions or collaboration with the existing schools/colleges in the neighbourhood ensured.
- Certain other trades of a less technical nature such as business and commerce courses, secretarial trades etc. in group II can be taken care of by some of the schools/colleges of General Education, which, too, will have to be given assistance for making the initial preparation to start a course.
- Above all, it needs to be emphasised that the teachers will need to be reoriented through special enrichment programmes.

**Management
of Plus 2
Stage.**

4.50. The agency for general education in the Punjab State is the Department of Education which manages all government schools and colleges and controls institutions in the private sector through the grants-in-aid scheme, excepting a very small number that do not seek such grants. On the other hand, the senior administrative and professional cadres needed by the State for its economy and the services are trained in the Universities and affiliated colleges including professional institutions such as the Engineering and Medical Colleges etc. They cater for professionals at the highest level, though some of them, e.g. Teaching Hospitals and Agriculture University, also offer courses for the middle level cadres. But it would appear that these training facilities are nowhere near adequate for the needs of the State except, perhaps, in engineering where an organised attempt has been made for training cadres at the middle level in the Polytechnics and I.T.I's, though these, too, may be inadequate. By and large, no serious attempts have been made to provide facilities for training the middle level cadres which possess the greatest potential for gainful employment.

4.51. Even in the case of the engineering profession the situation has been rather confused and unsatisfactory. While the training of the senior and middle level professionals was controlled by the Government department connected with the profession—in this case the P.W.D.—the training of the skilled craftsmen was the responsibility of the Labour Department. It is only very recently that the two have been brought together under a Directorate of Technical Education. This, no doubt, is a step in the right direction, but it is not enough, as the training of the skilled craftsmen of the future will require greater educational inputs, particularly in high technology areas. Their courses will, therefore, have to be

strengthened and updated, requiring collaboration with general education on one hand and Technical Education on the other.

4.52. It is evident to us that we have an unbalanced system of education for meeting the man-power needs of our state, leading to unemployment and frustration. This distortion in our educational system can only be corrected through the introduction of the Plus 2 stage and the vocationalisation of our educational system. We have considered this matter in depth, and have come to the conclusion that **AS A FIRST STEP GENERAL AND VOCATIONAL EDUCATION MUST BE BROUGHT MUCH CLOSER**, with strong links where inter-action could take place between them and they could become perceptive of each other's needs and the need of the country and collaborate to find an appropriate solution. Secondly, it is important not only to devise vocational courses at the Plus 2 stage with potential for gainful employment, but also to provide an alternative system of further education in vocational courses at the tertiary level **AT PAR WITH UNIVERSITY EDUCATION** on the vocational side with certification such as the Higher National Diploma tenable in U.K. and other progressive countries of the world. With this flexibility granted for upward mobility within the system, we hope that much of the craze for academic degrees will be checked. For achieving this objective we shall need to take some administrative steps, without which these distortions in our educational system cannot be set right.

Close linkages between Educational and Vocational Training.

4.53. It is felt that there should be an apex body for planning and monitoring all vocational education in the state. At the national level there is an all India body for Technical Education known as All India Council for Technical Education (A.I.C.T.E.). There is also an all India Council for Vocational Education. Similarly, there are other professional bodies at the national level responsible for the training of their professional cadres at all levels. It has been recommended and accepted in all national forms such as N.C.E.R.T. etc. that there should be a similar body at the State level to be called the State Council for Vocational Education and Training. We recommend that such a body be constituted as early as possible to plan and monitor the vocational component of the Plus 2 stage. What its linkages would be with general education and society and other institutions of the Educational System will be spelt out separately at a later stage. At the moment we only want to emphasize the importance of such a mechanism for the implementation of the Plus 2 stage and its vocational component.

State Council of Vocational Education and Training.

4.54. Senior Secondary Education is a distinct stage in the total educational structure of 10+2+3 with different objectives, approach and content. It is quite different from the stage of school education which precedes it. At the school

Board of Senior Secondary and further Education.

level there is no diversification of courses, as envisaged in the 10+2+3 pattern of education. Diversification is required to be introduced only at Plus 2 stage. Up to matriculation we follow a uniform curriculum. Students are being taught and evaluated in courses of one year duration. This approach both in content and level is quite different from that needed for the Plus 2 stage where many elective subjects would need to be offered and the teaching has to be based on the modular system of courses and continuous assessment. The flexibility required to be built in at this stage for horizontal mobility makes this stage of the educational structure quite distinct from others up to the high school level. Further, it will also have the component of vocational education courses at the level of Diploma and Higher National Diploma, which makes this stage very innovative and distinctive.

4.55. The management and evaluation of courses at this stage has to be very different from the preceding school stage and planned with care, if it has to succeed. This matter has been carefully examined by the Commission. After taking into account the experience available to us in other states and consulting persons involved in such planning, we have come to the conclusion that a separate Board for Senior Secondary and Further Education, autonomous in its constitution, with its Boards of Studies as statutory bodies, needs to be created before the implementation of the Plus 2 stage can be embarked upon. What its linkages should be with the Universities, the School Board of Education and the Council of Vocational Education etc. will form a separate part of our recommendations. At the moment, we would like to emphasize that such a mechanism needs to be brought into existence for planning and preparation for the implementation of the Plus 2 stage in collaboration with the SCERT, the Research Unit of the Department of Education and the Department of Technical Education and Industrial Training. It goes without saying that such a Board, to be effective in carrying out this exercise in academic planning and evaluation, must necessarily be constituted by experts from the field of education, science, social sciences and technology. The administrative component of the board should be kept to the barest minimum to enable the experts to plan unfettered in the best interest of the educational system and its purposes.

SUMMARY OF

CHAPTER IV : EDUCATIONAL STRUCTURE (10+2+3)

1. Educational structure is not merely a digital adjustment of time allocation in the education cycle. It has implications for the nature and content of courses at each level of education, which have to be characteristic of the pupils, developmental stage. Its reorganisation, therefore, has been the subject of examination by various Commissions and Committees with a view to suggesting purposeful changes designed to improve the educational system.

The Education Commission (1964—66) concluded that, on sound academic considerations, it would be desirable to adopt a uniform pattern 10+2+3 for school/college education in all parts of the country. The Government of India's Resolution on a National Policy on Education in 1968 approved it for adoption by all states. The Draft National Policy on Education (1979) further endorsed it, with minor modifications. 10+2+3 thus, has come to stay as a National Pattern of Education. (4.01—4.11)

2. The basic issue, therefore, is to plan modalities for the implementation of the 10+2+3 pattern rather than debating the question of its acceptance.

(4.12)

3. In the acceptance of the 10+2+3 pattern, to which Punjab must conform, detailed planning and preparation is required for its implementation especially at the Plus 2 stage, which is the innovative link. We have neither familiarity with, nor any experience of, this stage to provide us with a framework within which we could quickly begin operations.

(4.13—4.15)

4. The Education Commission (1964—66) recommended reorganisation of the educational structure (10+2+3) with a view to minimising disparities in the pattern, laying strong foundations for tertiary education both in the universities and the vocational institutions by diversifying courses at the Plus 2 stage into academic and vocational streams, and modernising the school and college curriculum, thereby raising educational standards so as to be comparable to those in other advanced countries.

(4.16)

5. Basic to diversification of courses at the Plus 2 stage is a strong faith that it has the potential for building up a robust modern society and that education is something more meaningful than mere academic pursuits. Vocationalisation

of education at this stage must help reduce the pressure on colleges and universities offering liberal education, besides equipping a large majority for gainful employment.

(4.17—4.21)

Proposed
Structure.

6. The proposed structure would include 10 years of the school cycle with a break-up of 5+3+2, which is administratively convenient and psychologically sound, followed by 2 years in a school or college offering academic/vocational courses, and a three year degree programme. The plus 2 stage has sufficient flexibility to allow for horizontal mobility between the academic and vocational streams and also provides a balanced system of education for the supply of personnel for middle level man-power trained in specific competencies.

(4.22—4.26)

7. The success of the plus 2 stage would depend upon structuring of courses on a modular basis to provide for both horizontal and vertical mobility. For academically motivated students the course offering after the successful completion of senior secondary could be (a) a 2 years' pass degree course, (b) a 3 years' Honours degree course, and (c) the first degree in a professional college/institute. The courses for the pass and Honours degree for the first 2 years could be common. Provision for offering courses of a functional utility with a vocational bias could be made for those who do not wish to pursue academic studies beyond the pass degree.

(4.27—4.29)

Further
Education.

8. The vocationally motivated students, after the completion of the Plus 2 stage education in the vocational stream, can either find gainful employment or continue with further education at the polytechnics, leading to the National Diploma, and subsequently to the Higher National Diploma, the latter to be equated to the first degree level of the universities on the vocational side. Unless this limb of tertiary education is properly organised, no reforms in education would reduce unemployment and frustration as its consequent concomitant.

(4.30-4.31)

Post-graduate
Education.

9. Post-graduate courses, generally offered at the University departments and some selected colleges, are, by tradition, of 2 years' duration after the first degree. The research degree takes a minimum of 3 years' work after the Master's degree. A degree known as Master of Philosophy (M.Phil) in between the Master's and Ph.D. has been introduced for college lecturers. M.Phil. and Ph.D. programmes should be offered only in selected institutions where research facilities exist. The only change proposed in the new structure will be to suggest 15 years of academic preparation for the first degree with Honours. This will be necessary for attaining standards comparable to internationally recognised attainments. Post-graduate courses on the professional side, however, would

conform to their own pattern evolved in response to their own needs.

(4.32—4.34)

10. Location of the Plus 2 stage is another vital issue which needs to be considered in planning for it. Taking into account the realities of the situation, and yet not deviating too much from the recommendations of the Education Commission (1964-66), it would be desirable to maintain the present position of allowing the Plus 2 Stage to exist both in the schools and colleges.

Location
of Plus 2
Stage.

(4.40)

11. This would require upgrading the existing 258 Higher Secondary Schools for the Plus 2 stage after carefully scrutinising their facilities according to pre-determined criteria.

(4.40)

12. The colleges that switch over to the three year degree programme should shed the Plus 2 stage, and schools should be upgraded simultaneously to accommodate students at the Plus 2 stage withdrawn from the colleges.

(4.42-4.43)

13. Only those colleges should be allowed to go in for the three year degree programme, which have sufficiently enriched facilities or which have the potential to raise such facilities. Other should follow the 2 year pass courses preferably with some vocational bias.

(4.44)

14. Simultaneously, it will have to be ensured that both in Colleges and Senior Secondary Schools the academic courses of study followed by the students at the Plus 2 stage must be the same and they must take the same examination.

15. For promoting vocational education at the Plus 2 stage it is imperative to have a State Council of Vocational Education and Training. The Government of India has such an organisation at the national level. A similar organisation is recommended at the state level by the Central Government and NCERT to plan and monitor vocational education in the state. For the accreditation and certification of courses a separate organisation will have to be set up like the National Council of Academic Awards in U. K., which awards its own degrees in the same manner as the universities. Alternatively, the State Council for Vocational Education and Training could perform these functions under statutory authority to be vested in it to award its own degrees and diplomas.

State Council
of Vocational
Education
and Training.

(4.53)

Board of
Senior
Secondary
and further
Education.

16. Since the aims and objectives and the approach to teaching and evaluation at the Plus 2 stage are unique and at a level higher than that at the school stage, it is quite evident that it should be controlled by a separate Board of Senior Secondary Education, or preferably by a Board of Senior Secondary and Further Education. This Board should be autonomous and statutory in nature, with its own Boards of Studies in each subject derived from the industry, professions and the secondary and tertiary systems of education. This arrangement should also facilitate horizontal and vertical mobility across the academic and vocational streams.

(4.54-4.55)

CHAPTER V

SCHOOL CURRICULUM

5.01. The term curriculum is used to include all activities and experiences that are planned for pupils, in an educational system, to advance their desirable growth. It is the core of the educational process.

Education has three important components :—

1. Imparting of information and knowledge;
2. Development of skills needed for the growth of society; and
3. Inculcation of desirable interests, habits and values for its harmonious functioning.

5.02. In our attempts at curriculum development so far, we have mainly concerned ourselves, surprisingly, with the first of these three components i.e. imparting of information and knowledge. This, too, has been done rather inefficiently. It is hardly adequate to meet the needs of our generation. We have only recently begun to realise the importance of developing skills to help our economic development. As regards developing correct attitudes and values, we have hardly begun to be aware of its importance for national integration and the health of our society. This would appear to us to be the most important function and objective of the whole educational process in the present day context.

5.03. The School curriculum all over the world is for ever in a state of flux and expansion because of the impact of social, economic and political forces operating in the environment. The explosion of knowledge, characteristic of our age, and the altered view of the basic concepts in physical, biological and social sciences due to present day scientific developments, has widened the gap between the needs of society and the school programmes.

5.04. The Government of India, during the past three decades, has appointed many Committees and Commissions on Education, and some of them have reviewed the current curriculum in our schools and universities in detail. The most recent of these, the Education Commission (1964-66) was appointed under the chairmanship of Dr. D. S. Kothari. It examined the educational system in the country in its totality from the primary to the tertiary stage. In respect of school curriculum it observed :—

“That the school curriculum in India has been very narrowly conceived and largely out of date. The

curriculum places a premium on bookish knowledge and learning, makes inadequate provision for practical activities and experiences and is dominated by examinations, external and internal. Moreover, the development of useful skills and the inculcation of the right kind of interests and attitudes and values are not given sufficient emphasis. There is thus urgent need to review, upgrade and improve the school curriculum."

5.05. In Punjab, the School Education Board has the responsibility of prescribing the curriculum for the school stage, and reviewing it as and when needed. The Board, since its inception, has not had many opportunities for revising and updating it. Our school curriculum is over-packed with a lot of dead wood that needs to be eliminated and replaced by useful and stimulating programmes that will interest the student.

Essentials of
Curriculum
Development.

5.06. Curriculum development is not a one time affair. It requires constant appraisal and renewal. Attempts made so far have been on an *ad hoc* basis generally not preceded by careful research or based on adequate expertise, nor followed by necessary supporting measures such as preparation of learning material, re-orientation of teachers or the provision of the needed physical facilities, with the result that it has yielded no positive results. We have carefully considered this matter and have come to the conclusion that without a proper mechanism for curriculum development the standards of education cannot be upgraded.

5.07. For upgrading the school curriculum a number of important measures have to be taken. Of these the most important ones are as follows:—

RESEARCH IN CURRICULUM: No meaningful change in curriculum can take place without a systematic feed back from the educational process and an expert group analysing this information for systematic curricular changes. Facilities for such research need to be established in the Universities, Training Colleges, the State Institute of Education and the State Board of School Education. There should be a unit for monitoring the research effort in the State being undertaken by different expert bodies.

PREPARATION OF TEACHING AIDS: Basic to the success of any attempt at curriculum development is the preparation of suitable text-books, teachers' guides and other teaching and learning materials. They lend substance and significance to the proposed changes.

RE-ORIENTATION OF TEACHERS: Whenever a curriculum revision is made, teachers must be oriented and equipped properly to deal with the new curriculum. A sound programme of in-service education consisting of seminars, workshops and short term courses, therefore, needs to be organised to reorient the teachers.

There should be a properly coordinated effort in this respect, using educational technology and mass media for the purpose.

RELATING CURRICULUM TO AVAILABLE FACILITIES : The curriculum needs to be related to the quality of teachers, the facilities available in the schools and the needs of the students with reference to their socio-economic background.

5.08. It could be argued therefore, that a single state curriculum designed to serve the needs of all the schools ceases to be meaningful for a very large number and variety of institutions in the state, and therefore, schools should be allowed to experiment with curricula to be followed by them. While this may be a very desirable goal, with the limitations of financial resources as well as the expertise available in curriculum development at the school level, it appears to us that this would not be a feasible proposition at this stage. But if a suitable mechanism for the constant appraisal of the curricula could be organised at the state level, that would enable us to improve the existing situation considerably. Unfortunately that too, is almost non-existent.

5.09. In Chapter IV on educational structure we have argued in favour of 10 years of schooling consisting of five years of primary education and three years of upper primary education constituting the Elementary School Stage. That is followed by 2 years of Secondary education completing the 10 years' cycle of school education. This pattern has been accepted as the national pattern of education on the basis of a general consensus in the country. We see no reason to deviate from it.

Organisation
of the School
Curriculum.

5.10. A consensus also seems to have emerged that during the elementary stage, for that matter even right up to the matriculation, educational programme in the school will be undifferentiated for all except in the area of work experience and allied subjects, where electives may be provided depending upon the availability of facilities to develop the students' creative potential. Otherwise, there should be no attempt at streaming and specialisation at this stage.

5.11. The trend in secondary education today is towards lengthening the period of general education and postponing diversification and specialisation to the second cycle of secondary education, or the Senior Secondary stage. We would like to support this view of the Kothari Commission. They have recommended that "a common curriculum of general education should be provided in the first ten years of the school education without diversification. Diversification should only take place at the Higher Secondary Stage".

Gifted
students.

5.12. While agreeing with this recommendation in general, we would, however, like to suggest a slight modification to it. While we agree that the core curriculum up to Matriculation, i.e., the end of the Lower Secondary, for all students should remain the same, we feel that in order to encourage the gifted students or allow some students who wish to experiment with their options both in academic and vocational areas at this stage, half of the time allocation for work experience and allied subjects, which is recommended to be 20 per cent of the total curriculum time at the lower secondary stage, could be utilised for this purpose. The other half of this time allocation should be retained for the core programme for this area, giving us 2 slots, as indicated in the diagram on the opposite page, for advanced courses in selected fields, or additional subjects of interest to the students, or taking up a vocational course in certain areas such as carpentry, typing and brick turfing which do not require extensive training to gain minimal competency as a terminal course.

5.13. It needs to be pointed out that this is not introducing diversification of education from an earlier stage i.e. lower secondary level, but an enrichment of our programmes, which has been advocated by many Education Committees and Commissions. Punjab has a tradition of providing options from an early stage, not only in academic subjects but also in vocational areas, which were introduced as early as 1974-75.

5.14. Further students in Punjab mature earlier due to many socio-economic factors. With this experience at our back and the advice available to us from various educationists with whom we have discussed this matter, we have come to the conclusion that perhaps this deviation from the National Pattern would be legitimate and justified in the case of Punjab. This, however, does not affect the planning of courses at the Higher Secondary stage in any way.

Educational
goals.

5.15. It has already been accepted that the curriculum of general education for the first 10 years of school consisting of the various stages i.e. primary, upper primary and secondary stages, should be organised as a continuous and integrated programme of studies. However, the standard of attainment at the end of each stage needs to be clearly defined.

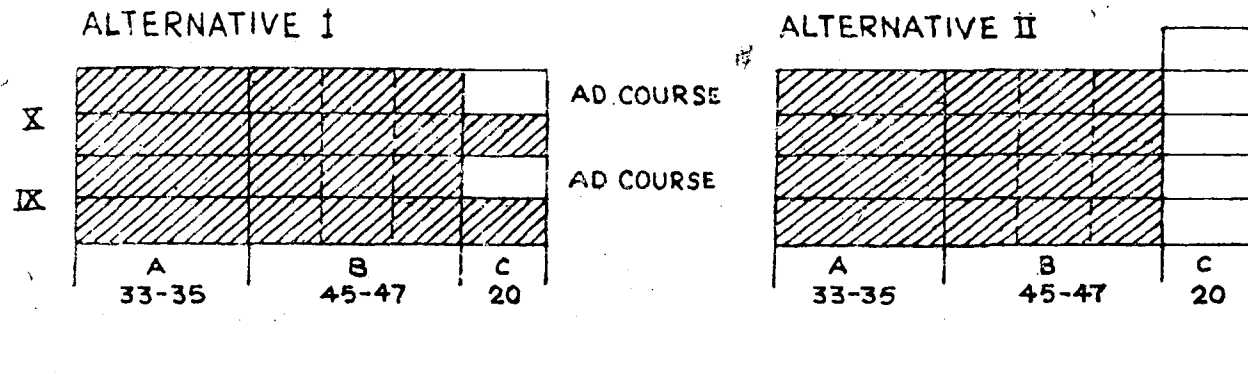


DIAGRAM 5.1 TIME ALLOCATION TO CURRICULAR AREAS
 AT SECONDARY LEVEL

These standards should be defined in terms of the knowledge, skills, attitudes and capabilities to be acquired.

5.16. We have examined this problem in depth. We have also consulted many experts in this area at the NCERT and other national institutions. The matter was also exhaustively examined by the National Commission on Education (1964—66). We have come to the conclusion that these standards and goals could not be better defined than in terms of the Education Commission's Statement in this respect with which we totally agree. It would, therefore, be appropriate to quote it here.

Recommendations of Education Commission (1964—66) Aims and Objectives.

They have defined these goals as follows :—

At the lower Primary stage (I to IV) the child should receive instruction in the basic tools of learning, such as reading, writing and computation and learn to adjust himself to his surroundings through an elementary study of his physical and social environment. He should participate in activities which develop his constructive and creative skills and teach him the habits of healthy living. In order that a sound foundation in the mother tongue may be laid at this stage, no language other than this should be introduced during the first four years. The curriculum of these classes should be gradually expanded and developed in keeping with the child's growth and development.

At the upper Primary stage (Classes V—VIII) the study of a second language will be added to that of the mother tongue: arithmetic skills will develop into the acquisition of more difficult mathematical knowledge: environmental activities will lead to the study of natural and physical sciences, history, geography and civics; constructive and creative skills will provide the basis for the practice of simple arts and crafts, and the practice of health living will vision has, therefore, to be made in the curriculum as the foundation for physical education.

The Curriculum at the Secondary stage (Classes IX-X) should meet the needs of the adolescent as well as the democratic society in which he is expected to participate as a citizen on reaching maturity. The needs of democratic citizenship will require the development of certain skills, attitudes and qualities of character such as the capacity for clear thinking the ability to communicate easily with one's fellowmen, a scientific attitude of mind,

a sense of true patriotism and an appreciation of the value of productive work. The secondary school curriculum should contain the necessary educational elements for the cultivation of these habits, attitudes and qualities. The needs of adolescence are related not only to the acquisition of knowledge and the promotion of intellectual ability but also to the fuller development of the physical, emotional, aesthetic and moral aspects of the pupil's personality. Provision has, therefore, to be made in the curriculum, on a more systematic scale than before, for programmes of physical education and subjects like art, craft, music, dancing and education in moral and spiritual values.

5.17. We also give below what, they have recommended, should be the broad areas of curricular studies to achieve these objectives for the different sub-stages, with which recommendations we are also in full agreement. Areas of curriculum study.

1. Lower Primary Stage (Classes I—V)

- (a) One Language—the mother tongue or the regional language
- (b) Mathematics
- (c) Study of the Environment (covering Science and Social Studies in Classes III to V)
- (d) Creative Activities
- (e) Work experience and Social Service
- (f) Health Education.

2. Higher Primary Stage (Classes VI—VIII)

- (a) Two languages (i) the mother tongue or the regional language, and (ii) Hindi or English
(Note : A third language (English, Hindi or the regional language, may be studied on an optional basis).
- (b) Mathematics
- (c) Science
- (d) Social Studies (or History, Geography and Civics)
- (e) Art
- (f) Work Experience and Social Service
- (g) Physical Education
- (h) Education in Moral and Spiritual Values.

3. Lower Secondary Stage (IX-X)

- (a) Three Languages. In Hindi speaking areas, they will normally be (i) the mother tongue or the

regional language, (ii) English (or Hindi, if English has already been taken as the mother tongue), (iii) a modern Indian Language other than Hindi.

- (b) Mathematics
- (c) Science
- (d) History, Geography and Civics
- (e) Art
- (f) Work experience and Social Service
- (g) Physical Education
- (h) Education in Moral and Spiritual Values.

5.18. Having defined the educational goals and the subject areas of study at different stages of school education, it would be appropriate to discuss briefly the approach to syllabus design to achieve these objectives.

Curriculum
Development
school stage.

5.19. The attempt at the primary stage as already stated above, should be to acquire basic skills of literacy, numeracy and knowledge of environment in terms of physical and social phenomena. We feel that most education during the first 5 years of school should be devoted to physical development, perceptual motor skills and discrimination, and developing in them habits of cooperative behaviour, social responsibility and appreciation of their culture.

Lower
Primary.

5.20. The proposed curriculum for achieving these objectives needs to be simple. Communication skills and elementary mathematics have to be emphasised with a view to developing the basic tools of learning. The study of environment will be largely informal in the beginning, and should be organised by making the child observe his immediate physical and social surroundings and made to express what he observes. Later, in class III the environmental studies should gradually lead to the Sciences and Social studies, which could, at that stage, be introduced as regular subjects but only in a very elementary manner and preferably as integrated Science and Social Science subjects.

5.21. While play-way activities will permeate all teaching, special activities in the form of music, art, dramatics and handicrafts should be organised for creative self-expression. Health education will focus on good health habits. Work experience will consist of social service in the class room, school the home etc. Special emphasis should be laid on awareness of our national heritage and on integration.

5.22. During the next three years of upper primary ^{Upper Primary} known as the middle school stage the pupils should be required ^(Middle School) to continue with the courses of study undertaken at the primary level but in greater depth content-wise and concept-wise. Learning will become more systematic with greater stress on discrete subjects.

5.23. In Punjab, a student at this stage is required to study three languages. He is introduced to the study of a library language, in our case English, for the first time. This extra educational load requires larger allocation of time out of the recommended schedule. We are fully aware of this need, but in our view this should not be done at the expense of time allocation for other subjects.

5.24. At the Lower Secondary Stage i.e. Classes IX and X, ^{Lower Secondary.} it is recommended that the subject combination as at the middle stage should continue. But with the increasing maturity of the students, their studies have to gain in rigour and depth. On account of phenomenal advances made in scientific knowledge and the importance of science and technology for our economic development and social transformation, subject competence in the Sciences is particularly important, and needs to be given special attention. This has also been recommended by the Education Commission (1964—66). History, Geography and Civics may be taught separately, bringing out such relationship as is natural and necessary in the context of our present day problems. Work experience at this stage should be preferably organised on the farms, at the nearest workshop, in production units or business establishments on a part-time or day release basis.

5.25. Earlier in para 5.12 we have voiced our concern about the gifted students both in the academic and vocational areas. We have also talked about flexibility of the educational system to allow the students to experiment. Keeping these considerations in view we are inclined to suggest that at this level, without disturbing the core courses (which should be common for all students, as **indicated in the diagram attached** we should allow them to exercise their options to undertake a course of their own choice for realising the goals of self-fulfilment within the framework discussed earlier.

5.26. At this stage it may be desirable to compare the present status of the School Curriculum in the Punjab ^{Comparison of Punjab Curriculum with other States.} that recommended by the Education Commission (1964—66) and that adopted by the Central Board of Secondary Education, and in some other States. This information has been put together, including time allocation for each subject area, in a tabular form for easy comparison, separately for each stage of the School Cycle, namely, Primary, Upper Primary and Secondary Stages.

5.27. Table 5.1 given below gives this information for the Primary Stage :

Table 5.1 : Comparison of Curriculum at Primary Stage

Kothari Commission	% Allocation	Punjab	% Allocation	Kendrya Vidyalaya	% Allocation
(1) Languages	(1) —	Languages	(2) 30	(1) Languages	(3) 40
(2) Mathematics	—	Mathematics	25	(2) Mathematics	17
(3) Environmental studies (Social studies)	—	Sciences and Social Studies	25	(3) Sciences and Social Studies	17
(4) Work Experience	—	Work Experience	20	(4) Work Experience and Allied	26
		(a) Physical Education	15	(a) Games	6
		(b) Activities	5	(b) Music	2
				(c) Supw	4
				(d) Drawing	2
				(e) Yego	6
				(f) Library	2
				(g) Co-curric	4

Source :—D.P.I. (Primary) Punjab, Chandigarh.

5.28. It will be observed that the curriculum adopted by Punjab at this stage follows by and large the pattern suggested by the Education Commission 1964—66, except that the state being bilingual, more time is allocated to the teaching of languages. Sciences and Social Studies are taught as separate subjects as against the study of Environment, both physical and social as a single subject advocated by the Commission.

5.29. Among the four segments of the curriculum the time allocation is almost the same i.e. 25 per cent of the time approximately for each subject area. This appears to be in order, and we wish to suggest no change in the time allocations at this stage. But we recommend that the educational goals for the 4th segment, i.e. work experience and allied subjects, should be carefully reviewed and re-defined and the teaching organised accordingly. We should also recommend the study of sciences, both physical and social, as study of Environment, as that would be more intelligible to pupils in the age-group of 6 to 9 years.

5.30. Tables 5.2 and 5.3 provide this comparison for the Upper Primary and Secondary Stages respectively. It will be observed that the subject areas of study at both these stages remain the same except that the teaching of the subject gains in rigour and depth from one stage to the other. Punjab, and for that matter most of the states have accepted this recommendation of the Education Commission, and adopted these subject areas for achieving their educational goals.

TABLE 5.2 : Comparative statement of curriculum at upper primary (Middle Stage)

Kothari Commission		Punjab		Kendriya Vidyalaya Sangathan		Tamil Nadu	
Subject Area	Time allocation %	Subject Area	Time allocation %	Subject Area	Time allocation %	Subject Area	Time allocation %
1. Languages (2)	30	Languages (3)	37	Languages (3)	38	Languages	37
2. Mathematics	14	Mathematics	15	Mathematics	15	Mathematics	20
3. Sciences	18	Sciences (Physics, Chemistry and Biology)	15	Sciences (Physics, Chemistry and Biology)	13	Sciences (Physics, Chemistry and Biology)	17
4. Social Studies	18	Social Studies (History, Geography and Civics)	11	Social Studies (History and Geography)	13	Social Studies (History and Geography)	11
5. Work Experience and Allied	20	Work experience and Allied	22	Work experience and Allied	21	Work experience and Allied	15
(a) Work Experience and Social Service		(a) { Elective subjects Agriculture Home Science, Drawing etc.	9	(a) SUPW	9	(a) —	
(b) Arts and Creative Activities		(b) —		(b) Art	6	(b) Art and Craft	6
(c) Education in Moral and Spiritual values		(c) —		(c) —		(c) Moral Instruction	3
(d) Physical Education		(d) Health and Physical Education	7	(d) Physical Education	6	(d) Physical Education	6
		(a) Co-curricular Activities	6				

Sources : (i) Report of the Education Commission, 1964-66.

(ii) Revised Syllabus for Standards VI to X, Vol. II, 1982, Director of School Education, Madras.

(iii) Punjab School Education Board, Mohali.

TABLE 5.3 : Comparative Statement of Curriculum at Secondary Stage

Kothari Commission		Punjab		C. B. S. E.		Tamil Nadu	
Subject Area	Time allocation %	Subject Area	Time allocation %	Subject Area	Time allocation %	Subject Area	Time allocation %
1. Languages (3)	30	Languages (3)	43	Languages (2)	27	Languages (2)	40
2. Mathematics	14	Mathematics	15	Mathematics	13	Mathematics	20
3. Science (Physics, Chemistry, Biology and Earth Science)	18	Science (Physics, Chemistry)	11	Sciences (Physics, Chemistry) and Life Sciences	16	Sciences (Physics, Chemistry and Biology)	17
4. Social Studies (History, Geography and Civics)	18	Social Studies (History & Geography)	11	Social Studies (History, Geography and Civics)	13	Social Studies (History & Geography)	11
5. Work Experience and Allied	20	Work experience and Allied	20	Work experience and Allied	31	Work Experience and Allied	12
(a) Work Experience and Social Service		(a) Electives	9	(a) S.U.P.W. (Internal)	18	(a) —	
(b) Arts and Creative Activities		(b) —		(b) —		(b) Art and Craft	3
(c) Education in Moral and Spiritual values		(c) —		(c) —		(c) Moral Instruction	3
(d) Physical Education		(d) Health and Physical Education	7	(d) Physical and Health Education	7	(d) Physical Education	6
		(e) Co-curricular Activities	4	(e) Co-curricular Activities	6		

Sources : (i) Report of the Education Commission, 1964—66.

(ii) Syllabi and courses for All India Secondary School Examination, 1983 and 1984. (Classes IX and X) C. B. S. E., New Delhi.

(iii) Revised Syllabus for Standards VI to X, Vol. II, 1982, Director of School Education, Madras.

(iv) Weightage given to different Areas of School Curriculum in various States, 1982, Curriculum Group, NCERT, New Delhi.

(v) Punjab School Education Board, Mohali.

5.31. From the study of these tables it will be observed that, in Punjab, we are devoting as much as 37-43 per cent of the curricular time to develop communication skills. It, however, needs to be noted that for reasons to be explained later, we include the teaching of three languages in our school curriculum. On the other hand, it would be reasonable to expect that this should not be done at the expense of other areas of study. In the present case it is being done by curtailing time allocation for Sciences. We strongly feel that this is not correct in the context of the importance of Sciences for our economic and social development. This is not to suggest that the standard of language teaching should be brought down. On the contrary we are convinced that there is need to improve it. This can, however, be done by adopting other reforms in the teaching of languages to be discussed later.

5.32. In respect of the other two subject areas, namely, Mathematics and work Experience and allied subjects, we find that Punjab follows generally the time allocation suggested by the Education Commission i.e. 14-15 per cent for Mathematics and 20 per cent for Work Experience and other allied subjects. We feel this should be adequate to organise the educational activities in both these subject areas except that optimal use is not being made of the allocation of time for the cluster of subjects associated with work experience and allied subjects. For instance, its time allocation of 22 per cent in Punjab, besides providing 7 per cent for physical Education which is the same as adopted by CBSE and other states, includes an allocation of 6 per cent for co-curricular activities. This activity, if considered essential, should be accommodated outside the curricular schedule. Further, the elective subjects that are offered within this cluster form a heterogeneous group without any specified educational goals. The options allowed permit certain omissions in educational activity which is essential for these educational goals to be achieved. The objectives of the study of this group of subjects need to be carefully defined, and the educational activity suitably organised. We feel that at present only 7 per cent of the time given to physical education has defined objectives. The rest of the time is not being usefully spent from the educational point of view. This matter will be discussed later in detail.

5.33. So far we have considered the school curriculum ^{Curriculum} stagewise, dealing with the different subject areas/areas of ^{contents.} educational activity which, by consensus, have emerged as areas of study at each stage, and should form a part of the school curriculum. We would now like to undertake a detailed discussion of each subject area for purposes of clarity in syllabus design, levels of attainment and possible approaches to teaching, for each subject area at different stages.

5.34. The importance of language instruction in any ^{Languages.} formal system of education is self-evident. It is a basic requirement for all types and levels of education. India being a

multilingual society, the problem assumes greater significance. After considerable discussion and debate in the country we have come to the conclusion that besides teaching the mother tongue, there is need for the teaching of a link language. Also, for advance studies, there is need for the knowledge of English as a library language. Hence the country has accepted what has come to be known as the three language formula.

Three
language
formula.

5.35. In order to implement this formula all Government schools in Punjab introduce the first language in grade I whereas the aided schools have the option to introduce either Hindi or Urdu as the First Language. In Grade IV a second language, Hindi or Punjabi is introduced on a compulsory basis, depending upon which one of these two languages was offered as the first language earlier.

5.36. In classes I to III the first language is given 25 per cent time. With the introduction of the second language, from grade IV the time allocation for languages is increased from 25 to 30 per cent, which would appear to us to be reasonable.

5.37. English is introduced as a third language in grade IV. It continues to receive high priority, as it still the medium of instruction at the university stage. It is also the library language and the language for international communication. The time allocation to the language at the upper primary stage is 37 per cent. The study of three languages continues up to the end of the lower secondary stage, i.e., matriculation and the time allocation at this stage is further raised to 43 per cent.

5.38. At these stages there appears to be much larger allocation of time for languages. No doubt, during these stages a third language is also included into the school curriculum, but excessive emphasis on acquiring literacy skills does not leave enough time for other subject areas, which assume greater importance in the curriculum at the secondary level. We have considered this matter very carefully and have come to the conclusion that we cannot afford time allocation of more than 30—35 percent for the three languages to be taught at these stages without seriously jeopardising the availability of time for other areas of study.

5.39. As already stated in para 5.32 we do not wish to suggest that the standard of attainment in languages at this stage would or should be brought down. On the contrary it needs to be raised, if standards of general education have to be improved. We are convinced that this is possible by exploring other approaches for their effective teaching such as the use of more competent and better qualified teachers and equipping them with better teaching methods and aids such as the use of language laboratories etc. There is also the possibility of utilising instruction in other subject areas i.e., study of environment and social science for improving competence in the first language area.

5.40. There is no provision at present for supervision and guidance in languages by specialists. It would be desirable to appoint subject specialists in languages for visiting the schools for inspection and guidance. The teaching aids and other equipment for the teaching of languages should be developed and the existing ones improved. A task force specially constituted for improving the teaching of languages is called for to support all efforts to improve and enrich our school curriculum in this area.

5.41. We believe that the most significant contribution made by the Education Commission (1964—66) was to recommend that Science and Mathematics should form compulsory areas of study for all pupils as a part of their general education in the 10 years' school curriculum. Though this has been accepted as a policy by the State Governments including Punjab, in its implementation certain distortions have occurred. For instance, in Punjab certain electives are offered at the Secondary stage, to the candidates with vocations which makes it possible for a student to avoid learning of science at that level. This needs to be set right.

5.42. Further, though Science is offered as a compulsory area of study in all schools to the candidates without vacations in the state up to the Matriculation standard, the way in which Science is taught leaves much to be desired. We made a special study of this problem, and as a result of our investigation, we have gathered the impression that the infrastructure and facilities available for the teaching of Science in our schools are most inadequate. Our Science teachers are not acquainted with the latest innovations, and there are many schools without science rooms, well equipped laboratories and suitable equipment for teaching science. Further, our teachers are not adequately trained in the use of demonstration techniques and educational technology (E.T.) for the teaching of science. E.T. could be most useful at this stage and could be utilised with great advantage for teaching of science through audio-visual displays.

5.43. Also, during recent years science has undergone basic conceptual changes. The syllabus and the teaching material used for the teaching of science is out of date, and needs to be reviewed and revised. We recommend that this process should be started, as early as possible through statutory Boards of Studies with the collaboration of the Institute of Science established for this purpose.

5.44. We recommend that at the primary stage the teaching of science should adopt the general science approach, which is primarily the study of environment, both physical and biological, with a view to understanding the general concepts, principles and laws governing natural phenomena.

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5.45. In grade I-II, the focus of teaching should be the environment of the child with special emphasis on the development of the power of observation and imagination. In classes III and IV, the child should be made familiar with his surrounding covering plants, animals, water, air and weather affecting his daily life, and he made aware of his social environment.

Science at
Post-primary
level.

5.46. At the post-primary stage the emphasis in the teaching of science should shift from the understanding of natural phenomena to the acquisition of knowledge with the ability to analyse logically and to draw conclusions. The subjects begin to acquire a more discrete discipline and should be taught as Physics, Chemistry, Biology, etc.

5.47. At the secondary level science should be taught as a discrete discipline of the mind and a preparation for higher education in the areas to which the students have already been introduced at the post-primary level, except that they should be made to cover wider areas and go deeper into contents.

5.48. Keeping in view these goals, the Education Commission recommended that 18 per cent time be allocated to the teaching of this area of study. We are in full agreement with it. The comparative statement (Table 5.3) referred to earlier indicates that at present only 11 per cent time is being spent on the teaching of science in the schools of Punjab State. This needs an upward revision to 18 per cent at least.

Science
for gifted
students.

5.49. We have already recommended in para 5.12 the possibility of providing courses in all curricular subjects at a higher level for the talented students at the secondary stage. This applies much more specifically to talented students in the area of science. Such courses should be introduced at the lower secondary stage in selected schools proposed to be established in each district (as is being suggested in Chapter IX) with adequate staff and other infrastructural facilities such as laboratories, equipment, etc.

Mathematics.

5.50. The teaching of Mathematics is no less important for national development than the teaching of sciences. The content and spirit of the subject will be helpful in developing satisfactory attitudes and logical thinking in the students. At present, at the primary stage, only Arithmetic is taught whereas at the middle and secondary stages Mathematics has been divided into Arithmetic, Algebra and Geometry. It may be continued as such in the primary classes, whereas at the Middle and Secondary stage an integrated approach be adopted with emphasis on the development of logical thinking. Further, the curriculum be revitalised at this stage and brought up to date.

5.51. The Education Commission (1964-66), in its report, recommended that the entire Arithmetic courses and

the basic operations in Algebra be completed by the end of the primary stage (Grade VII) and outdated material be deleted from the syllabus. We very much agree with these recommendations of the Commission and suggest that these courses may be continued up to the end of the middle stage in Punjab. The present approach to the teaching of Geometry, Algebra and Trigonometry be changed, as therein the emphasis is more on rote memory.

5.52. To modernize the teaching of Mathematics more systematic and axiomatic approaches should be adopted. (a) The B.Ed. course be revised simultaneously so as to meet the requirements of the new curriculum in Science and Mathematics to be introduced at the school level.

(a) The B.Ed. course be revised simultaneously so as to meet the requirements of the new curriculum in Science and Mathematics to be introduced at the school level.

(b) in-service courses on regular basis with the prescribed curriculum be conducted by the State Council of Educational Research and Training and the proposed Institute of Educational Studies and Development to update the knowledge of the working teachers.

5.53. With the erosion of the traditional value system in our industrial society the study of subjects in the social science areas assumes greater importance. The aim of teaching social sciences to the students should be:—

- To acquire a knowledge of their social environment.
- To understand human relationships and acquire certain attitudes and values for an intelligent and harmonious participation in the affairs of the community, the state, the nation and the world.
- In the context of the Indian situation to develop good citizenship and the emotional integration of our society.

This should be done through the study of such subjects as History, Geography, Civics, Economics and Sociology. The syllabus in Social Studies should lay stress on the idea of national unity and unity of mankind throughout the school course with due regard, of course, to the stage of development of the pupil.

5.54. At the primary level it should be advantageous to adopt an integrated approach by giving a co-ordinated programme of social studies centred around the study of man and his environment instead of unrelated bits of information in history, Geography and Civics. In the post-primary classes, while social studies may still be organised as a co-ordinated whole,

the pupils should be introduced gradually to the appreciation of the subjects of History, Geography and Civics as discrete disciplines. This process should be continued into the secondary school stage where these subjects will need to be taught as a separate discipline and will form the basis of specialised studies at the Higher Secondary level.

5.55. This is another area of study in the curriculum, the teaching of which needs to be improved. We have examined the trends in examination results over a number of years and find that there is considerable scope for improvement. Besides improving the teaching techniques and syllabi adequate time must be devoted to this area. At present in the curriculum scheme, there is provision of 11 per cent time. The Education Commission, keeping in view the importance of this area for developing better human understanding and attitudes that are essential for national integration, recommended 18 per cent time. We fully subscribe to this view and recommend that at least 15 per cent time be allocated to this area by curtailing some time from the teaching of languages, etc.

Work experience and allied subjects.

5.56. Recommendations to link work with education have been made by various commissions and committees, yet much has not been achieved in this direction. The establishment of Basic School in the country was a positive step in this direction, but it could not make much headway. The concept of work experience promoted by Gandhiji in Basic Education was redefined by the Education Commission (1964—66). It made a laudable recommendation to bridge the gap between work and education by making it a compulsory component of the school curriculum, the introduction of which responds to the specificities of our socio-cultural ethos and also the imperative of our national development. It aims at bringing about positive behavioural and attitudinal changes in the pupils by inculcating in them socially desirable values like co-operation, discipline, dignity of labour sympathy and compassion through the curricular educational activity such as work experience and its allied areas of study recommended to be included in the school curriculum.

5.57. Work Experience is not to be construed as an attempt to train highly skilled or professional workers to suit a particular vocation, but is to be interpreted as an educational experience to enhance general personality traits and skills—manual, artistic and creative. For us subjects like Art, Craft, Music, Dancing, Value Education, Physical Education and Community Service will also constitute the curricular segment of Work Experience and Allied Subjects.

5.58. The educational programme to bring about these attitudinal changes and the development of desired personality traits cannot be dealt with individually. They have to be planned as a complementary integrated programme. We, therefore, propose to deal with them collectively as an integrated whole.

5.59. For this purpose the Education Commission (1964—66) had suggested organising educational experiences in the following areas of study within the 20 per cent of time allocation out of the curricular schedule. We have examined this matter in considerable detail both in respect of time allocation and the approach to organising educational activity in each area of study, and would recommend the following as a guideline :—

	Primary Stage	Secondary Stage
(a) Work Experience ..	10%	6—7%
(b) Creative Activities ..	4-5%	3-4%
(c) Value Education and Social Service ..	5-6%	4—5%
(d) Physical Education ..	10%	6-7%

5.60. The schools in the State of Punjab have made a provision for work experience and allied subjects in the curricular frame and certain amount of time has been allocated for it in the weekly schedule. We are presenting below in Table 5.4 the provision made for this segment and time allocation for various educational activities within it. We are also comparing it with the proposed guidelines suggested above to find the extent of agreement needed between the existing practice and the recommended norms.

TABLE 5.4: Comparative Statement showing the Present and Proposed Status of Work Experience

	Primary Stage		Middle Stage		High Stage	
	Present	Proposed	Present	Proposed	Present	Proposed
(a) Work Experience		10%	6%	6-7%	—	6-7%
(b) Creative Activities		4-5%	9%	3-4%	9%	3-4%
(c) Value Education and Social Service	25%	5-6%	—	4—6%	—	4—6%
(d) Physical Education		10%	7%	6-7%	7%	6-7%

5.61. It will be seen from Table 5.4 that—

- (i) The distribution of time allocation for different areas of study within this segment at the primary level has not been made.

- (ii) Work experience and allied subjects at present occupy 25 per cent time at the primary level, 22 per cent at the middle school level and 16 per cent at the high school level.
- (iii) No provision has been made in the curricular frame work for value education and social service.
- (iv) Work Experience has been allocated 6 per cent time at the middle stage and this provision has been withdrawn from the secondary stage.
- (v) Creative activities have been allocated 9 per cent time both at the middle and high school stages. A further inquiry into details revealed that this time has been allocated for the study of elective subject and is not obligatory for all students.
- (vi) Physical Education has been allocated 7 per cent time both at the middle and high school stages.

5.62. It would appeal to us that there is a very serious omission in the organisation of the areas of study in this cluster of educational activity. The Education Commission (1964—66) had identified value education and social service as one of the four areas of educational activity to be included in this cluster of educational experience. This fact appears to have been completely ignored in our school curriculum. In view of the importance of this educational activity in the context of National Integration and Development and the emphasis given to it by the Education Commission, we strongly suggest that this omission should be rectified at an early date.

5.63. Further, it would be observed that the time allocation of 22 per cent at the middle level for this cluster of educational experience has been reduced to 16 per cent at the high school level by omitting the allocation for work experience, but it is most needed at this stage of the school cycle for diversification at the Senior Secondary level. It needs to be restored through suitable adjustment. We also recommend that at the primary stage, work experience and allied subjects for creative expression and enrichment of experience outside the bookish knowledge should be increased from the present 25 per cent to 30 per cent, particularly when there is no pressure from other competing demands, and since at this stage this approach to education seems most appropriate and acceptable.

5.64. Time allocation for electives both at the middle and high school stages is as much as 9 per cent; which we consider much too liberal. It would appear to us that creative activity must be distinguished from electives. There appears to be lack of clarity about objectives here. It points to the fact

that in planning the entire educational activity in this cluster the goals of educational experience must be clearly defined. We, therefore, propose to deal with each one of these activities separately.

5.65. Work Experience at the primary stage should ^{Work experience.} begin with simple creative, self-expressional activities, performed with locally available material and simple tools and thus activities related to cleanliness, self-help creativity, dignity of labour, co-operative attitude and good work habits can be introduced.

5.66. At the middle stage, in addition to the above activities, systematic use of tools should be emphasised. At this stage production and maintenance activities could be planned. These can be include service type activities like the improvement of the environment, its beautification community work, etc.

5.67. At the high school stage the main objective should be to enable the pupils to discover their interests and talents through a wide variety of work experience. It would be desirable to acquaint the students with the world of work and productive occupations going on in the community, and to develop self-respect, respect for manual labour and a sense of belonging to the community.

5.68. It has been observed that in the case of all the subject areas within this cluster, the educational activity to be organised would normally consist of a core programme for teaching basic principles and an opportunity for their application to live situations — what may be called its practice. In fact it is the second part of this educational experience that brings about the attitudinal changes that we are seeking to induce in our pupils.

5.69. Allied with work experience is education for ^{Education for Social and Moral Values.} social, moral and spiritual values. There are few states in the country that have attempted to include such programmes for their pupils in their school curriculum. After independence the first step towards developing these values was through the introduction of Basic Education. That system could not work for long, as its entire philosophy was lost in the maze of inconsistencies prevailing in the educational system.

5.70. However, its significant relationship with human life, and the needs and aspirations of the people is being increasingly realised. The national leadership is equally conscious of the need for improving the quality of human beings through education. The Government of India, therefore, appointed various Committees and Commissions notably the Sri Prakasa Committee on Religious and Moral Education 1960, and the Dr. Sampurnanand Committee on Emotional Integration 1961, to examine this issue. All of them without exception have recommended the introduction of value education at

all levels of the school curriculum. Further, it is becoming increasingly evident that progress in science and technology without simultaneous development of moral values is fraught with serious dangers, both internally and externally, for the future of our society.

5.71. The issue of the "What and How" of moral education is extremely complicated and to decide it the Uttar Pradesh Government took the lead by appointing a Committee in May, 1980, to consider the problems connected with the introduction of moral education in schools and colleges. The Committee made a very exhaustive report on this issue. We have consulted this report and considered some of its suggestions for our own purpose.

5.72. The Education Reforms Commission, Punjab, itself made an attempt to seek expert opinion on the issue by organising a three day workshop in October, 1983. In this seminar 17 papers were presented. The discussions and deliberations of the seminar proved very useful for developing guidelines for working out instructional arrangements for this area and their recommendations on this issue, with which we agree, are as follows:

- It has been universally accepted that Moral Value education should be included in the school curriculum both as a curricular and co-curricular educational activity.
- There are two possible options regarding the instructional strategies for imparting value education. One involves an indirect approach, viz., using suggestions discussions and co-curricular activities for teaching social and moral values. The other is the direct approach, viz., teaching through curricular subjects.
- The consensus was that at the primary level, where the children are too immature to understand abstract principles, indirect approaches be adopted. At the secondary stage moral education can be imparted directly as well as through various curricular subjects. The subject contents in different courses be restructured so as to emphasise value education. At the secondary level it can be introduced as a separate curricular subject.
- We can allocate 4 per cent time, i.e. two periods a week for this subject. Boards of Studies should work out the syllabus and produce teaching material.
- The students should be encouraged to study the material on value education independently. The

purpose of value education should remain latent like a true art. As far as possible, the teacher should remain in the background, and the students should be encouraged to study the material on values independently. The teaching material should contain stories, parables, biographies and lectures on ethical teaching. This period can be utilised by the pupils for guided introspection.

- Values can be developed by actually doing or living them. Personal example of the teachers and certain group exercises can be used to teach values and to develop useful inter-personal skills.
- Participation in co-curricular activities is very helpful for indirectly developing and imbibing values-activities like role play, social drama, games, sports, celebration of national and religious festivals, debates, discussions and visits to places of religious and historical importance can be used for value orientation.
- The teaching of various curricular subjects should be restructured and taken up in their true spirit for developing healthy habits and attitudes. For instance, Mathematics should emphasise accuracy, Science the pursuit of truth, History tolerance, communal harmony and international understanding, Literature aesthetic sense and altruism.
- Restructuring of text-books so as to integrate values with general education is very essential. All subjects should be made to yield the teaching of values. The presentation of the material must be made interesting and appropriate for different age groups of children.
- Compilation of text-books is a very difficult job. A task force should be especially constituted and made responsible for the production of books.
- Evaluation of moral development is extremely difficult. Every child has his own individual characteristics which should be identified and appreciated. Moral development is a continuous process and it should be continuously assessed by a team of teachers. Proper records should be maintained and remedial measures planned accordingly.
- It should not form an examination subject but the continuous assessment by the teachers should accompany the grade card.

We recommend that the relevant Board of Studies for this area of educational activity be constituted by the Board of Senior Secondary and Further Education as soon as it is established, to work out the syllabus, courses of study and scheme of assessment for this area at all stages.

Co-curricular activities.

5.79. Virtues such as discipline, courage, co-operation, self-sacrifice, fellow feeling and group loyalty are essential for successful citizenship. An enlightened view of life and the realisation of the purpose for which a person lives, could make one truly virtuous. It should be possible to orient the lives of the children towards virtue through well planned co-curricular activities. Lectures by learned and experienced people and group discussions can be organised to stimulate interest in the study of moral and spiritual values.

5.80. Some sort of physical activities like scouting, girl guiding, ACC, NCC, games and sports should be encouraged and used for developing discipline, courage, group loyalties and service to the community. At present very few students take part in these activities. We feel that everyone should take up some activity of this kind, and thus learn to form the habit of co-operation with others, and imbibe the spirit of service and sportsmanship.

Social service.

5.81. Social service should inspire people to identify themselves with the interests of the community. Suitable social service programmes could be used for evolving a well knit and united community. This could also be an instrument for national integration, to build character, improve discipline, inculcate faith in the dignity of manual labour and develop a sense of social responsibility. These services should be made an integral part of the school programme and carried out on a part time basis during the school hours.

5.82. There are different opinions with regard to whether social service be made compulsory for all or introduced on a voluntary basis. We are of the view that to be effective and generate a sense of involvement it should be on a voluntary basis to be extended as widely as possible to include a variety of activities. These services can be organised by providing opportunities to the children and youth in programmes of community development and through participation in community living.

Physical Education.

5.83. Until very recently the scheme of physical education emphasised only physical fitness, and ignored its educational values. A satisfactory programme of physical education should emphasise the total development of the physical personality of the individual, including knowledge of the physical body and its functioning, special talents and aptitudes in games and sports, mental alertness and personal characteristics like co-operation, leadership, discipline, hard work, moderation, balance and poise.

5.84. The importance of this area of study has been recognised. The state Department of Education and Sports has made it a compulsory subject of study at the upper primary (Middle) and secondary stages. For this subject 7 per cent time has been allocated. It amounts to assigning 4 periods a week. The contents of the curriculum in this area include the theory of physical education and sports and practical participation in games, sports and athletics.

5.85 It has been made an examination subject. The ratio of theory and practical work is 40:60 and 50:50 at the upper primary (middle) and lower secondary (matriculation) stage, respectively. As in other areas of study, the examination is held externally at the end of the upper primary (8th class) and lower secondary stage (10th class).

5.86. Our survey to determine the present status of this area of activity leads us to the conclusion that there is over-emphasis on teaching the theory of health education, games and sports, while the practical aspect i.e., proficiency in games and sports themselves, is being neglected.

5.87. This is an antithesis to the spirit of discipline. For better organisation of activities in physical education we recommend the following approaches:

- The development of physical skills, growth and efficiency of the pupils is very important. To achieve this "Play for All" should be introduced at all levels of education. Because of insufficient playgrounds, wherever it is not possible to provide this facility daily to all pupils, it may be rotated through a two days a week programme among all the pupils.
- We have examined the course content in physical education and find that the theory part at all levels can be taught and learnt within 30 periods of 35—40 minutes' duration. A school normally has 150—160 working days in a year, and thus about 120 school days can be devoted to play activities. Necessary guide lines for time to be allocated to theory and practical work school be developed by the State Department of Education.
- A new course in Physical Education for Secondary classes be prepared. It should lay more emphasis on the practical aspect, physical fitness growth and development than on theoretical education. For this purpose co-curricular activities in the form of games and sports should be organised outside the curricular schedule.

—In the schools only a limited number of teachers are available to guide the pupils in games and sports. Suitable steps may be initiated for the training of teachers interested in games and sports on a voluntary basis so as to have a pool of competent teachers in every school. A training course of 4—6 weeks for in-service teachers should be developed. The old practice for the orientation and training of teachers at N.I.S., Patiala be revived so as to ensure the conduct of games and other physical education programmes.

The following difficulties have been observed in implementing these programmes of work experience and allied activities successfully:

—Work experience and other allied activity is being introduced independently and without relating it to other curricular subjects. This tends to evoke a negative response on the part of the pupils. It would be desirable to relate this activity up to the point possible to other curricular subjects.

—By so doing shall make work experience and related subjects more interesting and meaningful to the students. It would be desirable for the respective Boards of Studies to work out the details for integrating work experience and allied activity with other related subjects.

—Lack of suitably qualified and trained teachers is creating problems for the successful implementation of this important educational programme. The success of this innovation is dependent upon the support of properly qualified and knowledgeable teachers, who are not available. If this activity is to be made successful, it would certainly call for training new teachers for this area of the curriculum and orienting teachers already in service through a phased programme.

—Work experience means participation in a socially useful productive activity in the school, in the workshop, on the farm, in a factory or in the home. The present facilities are inadequate and efforts have not been made to explore community resources. The fear of the huge expenditure involved in setting up workshops and farms in the schools has impeded the successful implementation of these programmes.

—No doubt, certain facilities will have to be provided in the schools, but as an interim measure the

help of the local community could be taken, and this experience can be provided through available facilities in the community. What we need to do is not to set up workshops but explore the necessary facilities available in the community and seek their co-operation as a first step. However, steps must be taken to employ part-time instructors to make this activity more meaningful.

5.88. As moral education and other related educational activity is a continuous process, its assessment is difficult. This has been one impediment against the ready acceptance of work experience and allied subjects as a curricular activity. It can be judged only through certain social situations/tests by ascertaining how an individual would act in a specific social situation. Even though certain tests have been evolved to measure the behavioural and attitudinal changes that take place in individuals, these have not yet received universal acceptance. We, therefore, rely upon day-to-day observation of the conduct and behaviour of the pupils in and out of the class-room. The teachers, therefore, need to keep a record of the behaviour of the students. Help of the school counsellor could be obtained for deciding the remedial measures or special programmes for those who present problems. These records have to be meticulously kept and supervised regularly like other internal assessment. In the absence of an organised internal assessment system, the schools are inclined to shy away from including these subjects in the curricula. We strongly advise that a special group should be constituted by the Senior Secondary Board for assessment of this educational activity.

5.89. We are conscious of the fact that a curriculum should never be imposed on the system but evolved by the teachers themselves involved in it. The same is true of the syllabus and time allocation for teaching different parts of the syllabus. The best we can do is to suggest guidelines for their consideration and propose a mechanism with which review and reappraisal of the curriculum can take place periodically.

5.90. From what has been discussed above regarding a possible school curriculum and its needs during the first 10 years of our school education, the following guidelines appear to emerge to enable the planners to complete their task. We strongly recommend their consideration:—

CLASSES I—III

First Language	.. 25%
Mathematics
Environmental Studies (Social Studies and General Science)	.. 45% (25+20)
Work Experience and the Arts, Health Education and Games and Moral Education	.. 30%
Total	.. 100

CLASSES IV V

First Language and Second Language	..	30% (15+15)
Mathematics	..	20%
Environmental Studies I (Social Studies)	}	20%
Environmental Studies II (General Science)		
Work Experience and the Arts, Health Education and Games	..	30%
Total	..	100

CLASSES VI—VIII

First Language, Second Language and Third Language	..	30/33%
Mathematics, Science (Life Sciences and Physical Sciences) Social Sciences (History, Geography, Civics and Economics)	..	47/50% (Equally divided)
Arts, Work Experience, Physical Education, Health Education and Games including Moral Education	..	20%
Total	..	100

CLASSES IX AND X

First Language, Second Language and Third Language	..	33/35%
Mathematics, Science (Life Science and Physical Sciences) Social Sciences (History, Geography, Civics and Economics)	..	45/47% (Equally divided)
Art, Work Experience, Physical Education, Health Education and Games (including Moral Education)	..	20%
Total	..	100

Total contact time.

5.91. At present the total number of working days and hours prescribed for educational institutions are 240—245 days and 5.30 and 6.45 hours, respectively. Of these 40—50 days and spent on examination, 5—10 days for sports tournaments and 5—10 days on account of celebrations such as foundation day, prize distribution, annual functions, etc. Thus the actual instructional work goes on for only about 165—190 days. This instructional period is inadequate. The Education Commission recommended that the number of instruction days in a year should be increased to about 234 (39 weeks) and N.C.E. R.T. made a recommendation for increasing the instructional days to 240, out of which 20 days may be spent on activities.

5.92. Keeping in view these recommendations we feel that the number of instructional days should not be less than 245, and we recommend the following break-up for its utilisation:—

Actual Instructional days	205—210
Examination days	30—35
Activities	5

5.93. The proposed school curriculum up to this stage is undifferentiated, rigidly structured, common for all students and in segments of annual duration. No diversification of subjects or areas has been conceived except for marginal innovation. It has been argued that pupils up to the age of 16 are immature, and it is unfair to expect them to make choice that are likely to determine their future for a life time. This is a rational argument, and is supported by physiological evidence. We are inclined to accept it. It is, therefore, recommended, as suggested by the Education Commission (1964—66), that diversification of education should be introduced in our educational system only from the Higher Secondary level, i.e., Class XI and XII.

Curriculum
at Senior
Secondary
stage.

5.94. It is hoped, as recommended by Dr. Kothari in his report, that "after the completion of the ten years' schooling leading the High School Examination, the special interests and abilities of the pupil will have been generally formed, and with a good counselling and guidance system (which is a must to retrieve our education system) he can be helped in the choice of his future career and educational courses. An extensive and valued programme of Vocational Education should be provided to enable about 50 per cent of those, who wish to continue their studies beyond Class X, to join vocational courses and the rest to join courses of general education".

(a) Diversifi-
cation at Plus
stage.

5.95. It was hoped to achieve this target by the year 1985. But it is far from being achieved in the near future. Like many other states it has not been possible for Punjab to provide adequate facilities for vocational education as yet. We have considered this matter very carefully and are of the opinion that unless the vocational limb of our educational system at the Plus 2 stage develops immediately with vigour and sincerity, no reforms in the educational system will be possible. We consider this basic to all educational reforms in the State.

(b) Vocational
Education
Courses.

5.96. Certain steps will have to be taken by Government before vocational education can be satisfactorily organised in the State. These will be dealt with separately in Chapters VI and XI. The proposed curriculum for these courses will also be dealt with there. We may not, therefore, pursue this matter any further.

5.97. The curriculum for Higher Secondary Education (academic stream) has been the subject of considerable discussion and debate ever since the Education Commission (1964-65) recommended the national pattern of education (10+2+3), which included the Plus 2 stage of Higher Secondary Education as a unique stage. The Central Board of Secondary Education has examined it in detail. NCERT has been working on it since its inception. Government of India appointed a Committee under the chairmanship of Dr. Malcolm Adiseshia to examine the curriculum and submit a report.

(c) General
Education
Courses.

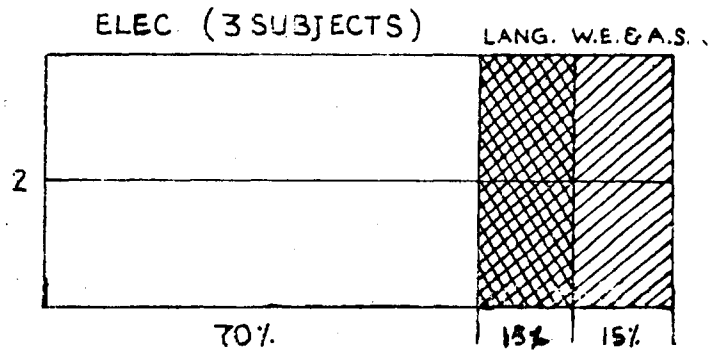
He submitted his report in 1978, which has since been accepted by the Government, and forms the basis of planning for educational programmes at this stage.

5.98. The report generally agrees with the recommendations made by the National Commission on Education (1964—66) except for the time allocation. It divides the subject areas, which should form a part of the curriculum, into three clusters: Languages, Elective subjects out of which three will be chosen for in depth study and work experience and allied activities. A tentative list of subjects to be included in the curriculum is given below. This list, no doubt, is tentative and will have to be examined by experts in the Boards of Studies while working out the detailed curriculum. The subjects listed are as follows:—

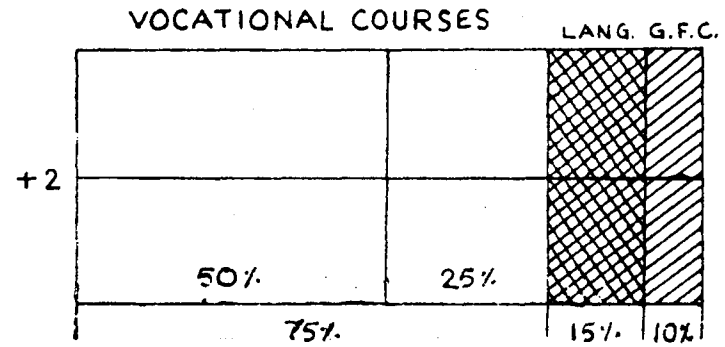
1. Any two languages, including any modern Indian language, any modern foreign language and any classical language.
2. Any three subjects from the following :
 - (a) An additional language,
 - (b) History
 - (c) Geography
 - (d) Economics
 - (e) Logic
 - (f) Psychology
 - (g) Sociology
 - (h) Art
 - (i) Physics
 - (j) Mathematics
 - (k) Chemistry
 - (l) Biology
 - (m) Geology
 - (n) Home Science
3. Work Experience and Social Service
4. Physical Education
5. Art or Craft
6. Education in Moral and Spiritual Values.

5.99. The Education Commission (1964—66) and suggested a time allocation of only 50 per cent of the schedule for the 3 elective subjects, while Adishesia considered this inadequate and suggested increasing it to 70 per cent. The Central Board of Secondary Education seems to fall in line with this thinking. We have considered this point in detail,

GENERAL EDUCATION STREAM



VOCATIONAL STREAM



W.E.&A.S. _ WORK EXPERIENCE
 & ALLIED SUBJECTS
 G.F.C. _ GENERAL FOUNDATION
 COURSES

DIAGRAM 5.2 _ TIME ALLOCATION TO CURRICULAR AREAS
 AT SENIOR SECONDARY LEVEL

and would be inclined to suggest the same. The distribution of time that we would like to recommend will be 15 per cent for languages, 15 per cent for work experience and allied activities and 70 per cent for the elective subjects, as indicated in the diagram on the opposite page.

5.99. The adolescent period in the life of an individual occupies a distinctly significant place in the sense that it require special care and recognition of the needs arising from the physical, physiological and emotional transformation from childhood to manhood. For making the optimal use of his talent, the co-curricular activities such as games, sports and cultural activities assume greater significance at this stage, and will have to be so organised that the adolescents are placed in a position where they can express themselves more freely and more often. The need at this stage of the inputs from the third cluster of subjects i.e. work experience, social service, creative activity and social values is even greater. We would, therefore, like to recommend that the demands from the other parts of the curriculum should not be allowed to erode the time allocation for this input, which is very important to build a healthy and alert nation.

SUMMARY OF

CHAPTR V : SCHOOL CURRICULUM

1. Education is a purposively planned activity directed to modifying personality of pupils through a carefully developed curriculum and well organised instruction for :

- (a) imparting knowledge and information;
- (b) developing skills useful to society; and
- (c) inculcating correct social attitudes and values.

Curriculum, which is basic to the educational process, must reflect these three features and include all research activities and experiences as are considered essential, from time to time, and are conducive to the optimal modification of pupils' personality.

(5.01)

2. In our attempts at curriculum development so far, we have mainly concerned ourselves with imparting of knowledge and information and that, too, rather inefficiently. It is hardly adequate to meet the needs of our generation. We have only recently begun to realise the importance of developing skills to help our economic development. As regards developing correct attitudes and values, which is the most important function and objective of education in the present day context, we have hardly begun to be aware of its importance for national integration.

(5.02)

3. The curriculum all over the world is in the process of change because of the explosion of knowledge and the altered view of the basis concepts of physical, biological and social sciences due to rapid scientific development. Somehow, in our context during the recent years, the gap between the needs of society and the school programmes has widened.

(5.03)

4. Realising the importance of education, the Government of India after independence appointed many committees and commissions on education. The most recent of these, the Education Commission (1964—66), examined the education system in the country in its totality. In respect of school curriculum they observed that it has been narrowly conceived, is largely out of date, and is dominated by examinations. Moreover, the development of useful skills and inculcation of right kind of interests, attitudes and values are not given sufficient emphasis. There is, thus, an urgent need to review, upgrade and improve the school curriculum. The deficiencies pointed out then hold true even now.

(5.04)

5. In Punjab the responsibility for prescribing the curriculum for the school stage lies with the Punjab Education Board which, since its inception in 1969, has not had many opportunities for revising and up-dating it. Our school curriculum is over-packed with a lot of dead-wood, which needs to be replaced by useful and stimulating programmes of interest to the students.

(5.05)

Essentials of
Curriculum
Development.

6. Curriculum development, in itself, is a continuous on-going process. It requires appraisal and renewal from time to time. In our case, attempts made so far, in this direction, have been on *ad hoc* basis, generally not preceded by careful research or followed by preparation of learning material, re-orientation of teachers and the provision of the needed physical facilities, with the result that it could not demonstrably yield positive results.

(5.06)

7. For upgrading the school curriculum, therefore, systematic research in curriculum would be required for obtaining feed-back from the education process. Basic to the success of any attempt on curriculum development is the preparation of suitable text-books, teachers' guides, and other teaching and learning materials.

8. Any curriculum renewal also pre-supposes a re-orientation of teachers, which work can be assigned to the proposed Institute of Educational Studies and Development, the details of which have been given in Chapter VII. The last component of this mechanism of curriculum development is to seek a relationship between curriculum and the available facilities.

(5.07)

9. A single state curriculum, it can be argued, designed to serve the needs of all the schools, therefore, ceases to be meaningful for a very large number and variety of institutions. It has, therefore, been suggested sometimes that schools should be allowed to experiment with curricula to be followed by them. But this is not feasible under our condition.

(5.08)

10. A suitable mechanism for the constant appraisal and renewal of a common curricula for the State has, therefore, been advocated that would enable us to improve educational standards. Such a mechanism is almost non-existent under our situation and needs to be organised.

(5.08)

11. We have supported the Ten years cycle of school education consisting of 5 years of primary, three years of middle and two years of secondary education. We are also in

agreement with the views of the Education Commission (1964—66), that educational programmes in the schools for the first ten years should be undifferentiated for all with slight modifications. We are in favour of optimally channelling the talent of the gifted students at the lower secondary level by making them utilise half the time meant for work experience and allied subjects for the core programme in that area and the other half for advance courses in selected fields or for vocational alternatives in areas of their interest for developing their creative potential. It only means enlargement of curricular experiences and should not be confused with diversification of courses at that level.

(5.09—5.13)

12. The goals of education to be achieved at the end of primary, upper-primary and secondary stages, must be clearly defined in terms of the knowledge, skills, attitudes and values to be acquired. We endorse the goals of education that have been very well defined by the Education Commission (1964—66) which are as below :

- At the lower primary stage the child should receive instruction in the basic tools of learning, such as, reading, writing and arithmetic and learn to adjust himself in his surroundings through an elementary study of his physical and social environment. He should also participate in creative activities and learn habits of healthy living.
- At the upper primary stage the study of a second language will be added, arithmetical skills will develop into the acquisition of more difficult mathematical knowledge, environmental activities will lead to the study of natural and physical sciences, history, geography and civics, creative skills will provide for the practice of simple arts and crafts, and the practice of healthy living will become the basis for physical education.
- At the secondary stage the curriculum should meet the needs of the adolescents and the needs of the democratic society in which they are to participate as citizens. It should contain all those elements that are essential not only for the acquisition of knowledge but for the fuller development of the physical, as well, emotional, aesthetic and moral aspects of the pupils' personality. At this stage a more systematic provision has to be made for art, craft, music and education in moral and spiritual values.

(5.16)

13. To achieve the above objectives we are in agreement with the Education Commission (1964—66) for inclusion of the following broad areas of study at different levels :

(i) Lower Primary Stage (Class I—V)

- (a) One language — the mother tongue or the regional language
- (b) Arithmetic
- (c) Study of the Environment (covering sciences and social studies in classes III to V)
- (d) Creative Activities
- (e) Work experience and social service
- (f) Health Education

(ii) Higher Primary Stage (Classes VI—VIII)

- (a) Two languages (i) the mother tongue or the regional language; and (ii) Hindi or English

Note : A third language (English, Hindi or the regional language, may be studied on an optional basis)

- (b) Mathematics
- (c) Science
- (d) Social Studies (History, Geography and Civics)
- (e) Art
- (f) Work Experience and Social Service
- (g) Physical Education
- (h) Education in Moral and Spiritual Values

(iii) Lower Secondary Stage (IX-X)

- (a) Three languages. In Hindi speaking areas, they will normally be (i) the mother tongue or the regional language, (ii) English or Hindi (if English has already been taken as the mother tongue), (iii) a modern Indian Language other than Hindi

- (b) Mathematics
- (c) Science
- (d) History, Geography and Civics
- (e) Art
- (f) Work Experience and Social Service
- (g) Physical Education

(5.17)

(h) Education in Moral and Spiritual values.

14. The State should continue with the present three language formula. The first language, i.e., the mother tongue,

should be introduced in grade I; the second, the link language, in grade IV; and the third, the library language, in grade VI.

15. Time allocation to languages in primary classes, at present, is reasonable and, therefore, no change is suggested. Allocation of time to languages in middle and high schools is about 40—45 per cent, which is on the higher side than is feasible in view of the competing demands of other curricular areas of study. It should be limited to 30—35 per cent.

16. By reducing the time we do not mean to lower the standards of attainment in the languages, rather these should be raised by having more competent teachers and by making use of language laboratories etc. besides appointing language specialists for guidance of schools.

(5.34—5.40)

17. We agree with the most significant contribution made by Education Commission that science and mathematics should form the compulsory area of study upto the secondary stage. Punjab has accepted it as a policy but there are certain distortions in its implementation. In the new scheme that we have suggested, such distortions would be automatically eliminated.

Study of
Science and
Mathematics.

(5.41)

18. In the existing set-up the candidates without vocation offer science as a compulsory subject in all schools. But the infrastructure and facilities available for the teaching of this subject, are inadequate and the teachers are not well equipped in the use of educational technology. Steps should be taken to provide such facilities and greater use of educational technology for teaching science should be made.

(5.42)

19. During the recent years science has undergone basic conceptual changes but the syllabus and the teaching material has not been revised. It would, therefore, be desirable to start the process as early as possible for the review and revision of courses.

(5.43)

20. The following approaches for improving the teaching of science at various levels are suggested :—

- Science at the primary stage should focus on the environment of the child.
- At the post-primary stage the subject should begin to acquire the form of a more discreet discipline and should be taught as physics, chemistry etc.
- At the secondary level it should be taught as a discreet discipline and preparation for higher education in the areas to which the students have already been introduced at the post-primary level.

(5.44—5.47)

21. Talented students should be provided advanced courses both of theoretical and practical nature, especially in the areas of science. Such courses should be introduced at the lower secondary stage in selected schools. (5.49)

22. The curriculum in Mathematics should be modernised and made up-to-date for its importance for national development and for developing satisfactory attitudes and logical thinking in the students. (5.49)

23. The present approach at the primary stage, to teach only arithmetic, may be continued whereas at the middle and secondary stage, an integrated approach which emphasis on the development of logical thinking be adopted. (5.50)

24. To modernize the teaching of mathematics more systematic approaches should be adopted :

— The B.Ed. course should be revised to meet the requirements of new curriculum in this area at the school level;

— Inservice courses be conducted to update the knowledge of working teachers. (5.52)

25. Teaching of social studies would be essential for vitalizing the values in our society and unity of mankind. This should be done through the study of such subjects as History, Geography, Civics, Economics and Sociology. (5.53)

26. For teaching this subject at the primary level an integrated approach should be followed; at the middle level it should be organised as a coordinated whole but the pupils be introduced gradually to the appreciation of History, Geography and Civics as discreet disciplines and at the secondary stage these subjects should form the basis for specialised study at the senior secondary level. (5.53—5.55)

27. At the secondary stage, the contact time in the teaching of these subjects should be raised to 15 per cent to 18 per cent from the present 11 per cent.

28. Work experience and allied activities could not be implemented successfully for it has been introduced independently without relating it to other curricular subjects. It would be desirable to relate it to other subjects. Lack of suitably qualified teachers and inadequate facilities in schools, in the factory, on the farm or in the home have also been depressing factors to the promotion of this field of study. Help of the local community could be taken as an interim measure

Study of
Social
Studies.

Work ex-
perience and
Allied Subjects.

and part-time instructors could be appointed to make this activity more meaningful. Work experience should be made a compulsory component of school curriculum to bridge the gap between work and education and to develop traits, such as manual, artistic and creative. Allied subjects would include subjects like Art, Craft, Music, Dancing, Value Education, Physical Education and Community service.

(5.56—5.57)

29. Work experience at the primary stage should begin with simple creative activities performed with locally available material and tools. At the middle stage it will also include maintenance and production type activities. At the high school stage it would be desirable to acquaint the students with the world of work and productive occupations going on in the community.

(5.65—5.67)

30. There are few States in the country that have attempted to include such programmes in the school curriculum. Various commissions and committees appointed by the Government of India have recommended the inclusion of value education at all levels of school curriculum. Yet this is the most important area of study in the school curriculum for national integration and nation building.

(5.69—5.70)

31. We suggest the following guidelines for working out instructional arrangement for this area :—

- It should be included in the school curriculum both as a curricular and co-curricular activity.
- Both the direct and indirect approaches should be adopted as instructional strategies.
- At the primary level indirect approaches and at the secondary level both approaches can be adopted.
- Two periods a week could be allotted for this subject.
- For developing values, participation in co-curricular activities should be encouraged.
- Teaching of various curricular subjects should be restructured for developing value system.
- Text-books should be restructured so that curricular subjects may yield to the teaching of values.
- Moral development should be continuously assessed internally by a team of teachers and it should not form an examination subjects.

(5.69—5.72)

Social
Service.

32. Social service should be introduced so that pupils may identify themselves with the interests of the community. It should be introduced on a voluntary basis as a co-curricular subject.

(5.81—5.82)

Physical
Education.

33. A satisfactory programme of physical education should emphasize the total development of personality of the individual. In Punjab it has been made a compulsory subject of study at the primary and middle stages and also made an examination subject. We have observed that there is an increasing emphasis on theory whereas the practical aspect is being neglected. To develop the subject we make the following recommendations:—

- 'Play for All' should be introduced at all levels for the development of physical skills, growth and efficiency of the pupils.
- Necessary guidelines for rational distribution of allocated time between theory and practical should be developed.
- A new course on physical education with emphasis on practical aspect, physical fitness and development rather than on theoretical orientation, should be developed.
- For the promotion of games and sports it would be desirable to have a pool of competent teachers in the school. This can be achieved by arranging orientation courses of teachers in collaboration with N.I.S., Patiala.

(5.83—5.88)

34. The weightage to be assigned to the teaching of various school subjects in respect of allocation of time is suggested as follows:—

CLASSES I-III	
First Language	25%
Mathematics, Environmental Studies (Social Studies and General Sciences and General Science)	45% (25+20)
Work Experience and the Arts, Health Education and Games and Moral Education	30%
Total	100
CLASSES IV—V	
First Language and Second Language	30% (15+15)
Mathematics	20%
Environmental Studies-I (Social Studies)	} 20%
Environmental Studies-II (General Science)	
Work Experience and the Arts, Health Education and Games	30%
Total	100

CLASSES VI—VIII

First Language, Second Language and Third Language	..	30/33%
Mathematics, Science (Life Sciences and Physical Sciences) Social Sciences (History, Geography, Civics and Economics)		47/50% (Equally divided)
Arts, Work Experience, Physical Education, Health Education and Games including Moral Education		20%
Total	..	100

CLASSES IX-X

First Language, Second Language and Third Language	..	33/35%
Mathematics, Science (Life Sciences and Physical Sciences) Social Sciences (History, Geography, Civics and Economics)		45/47% (Equally divided)
Arts, Work Experience, Physical Education, Health Education and Games including Moral Education		18/20%
Total	..	100

Distribution of Time for Work Experience and Allied Activities :

	Primary	Middle
Work Experience	.. 10%	6-7%
Creative Activities	.. 4-5%	3-4%
Value, Education and Social Service	.. 5-8%	4-6%
Physical Education	.. 10%	6-7% (5.60—5.90)

35. The number of instructional days should not be less than 245, of which 205—210 days should be for actual instruction, 30—35 days for examinations 5—10 days for other activities. (5.92)

36. The diversification of education should be introduced in our educational system, at the senior secondary stage. An exhaustive programme of vocational education should be provided to enable about 50 per cent of students to join vocational courses ultimately and the rest could opt for general education. (5.93-5.94)

37. Adequate facilities for vocational education must be provided in the State because without a strong base of vocational education, no reform in the educational system will be possible. To organize vocational education satisfactorily, suggestions have been given in Chapter VI and XI. (5.95)

38. General education courses at the senior secondary stage should be divided into three clusters : languages, elective subjects, and work experience out of which three will be chosen for independent study. (5.97-5.98)

39. The Education Commission has suggested a time allocation of 50 per cent for the three elective subjects. The Adishia Committee increased it to 70 per cent, and CBSE falls in line with this thinking. We are also inclined to suggest the same. We would recommend the distribution of time as follows:—

Languages and other Formation Courses	... 15%
Electric Subjects	... 70%
Work Experience	... 15%
Total Time Allocation	<u>... 100%</u>

(5.99)

CHAPTER VI

VOCATIONAL EDUCATION

6.01. In Chapter IV we stressed the importance of Vocational Education at the Senior Secondary level as a means to meet the developmental needs of our economy. Perhaps, the single most significant contribution of the Education Commission (1964—66)*, was to highlight that our national pattern of education at the Higher Secondary stage must be redesigned to include vocational education. Crucial to the new pattern is the concept of diversification of courses at this stage, so that students may not be confined to the academic channel alone, but may choose programmes of study consistent with their interest and aptitude, and also improve the prospects of their employability. More specifically, it suggested that by 1986, 50 per cent of students at the Plus 2 stage of schooling should be engaged in part-time or full-time vocational study. of A National Perspective.

6.02. The Education Commission (1964—66) was not the first to suggest the introduction of the vocational element in school education. As has recently been reviewed by Raghuram Singh (1983),** these efforts began in “1854 when the famous Despatch sent by Lord Wood mentioned that instruction in secondary school should be ‘practically useful to the people of India in their different spheres of life and make them more useful members of society in every condition of life’. Similar recommendations were made by the Indian Education Commission (Hunter : 1882-83), Wood and Abbot Report (1935), Philip Hartog Committee Report (1929), and the Sargent Report (1944) otherwise known as Post-War Educational Development plan”.

6.03. After independence the Radhakrishnan Commission (1948) suggested that school education be given a vocational bias. The Mudaliar Commission (1952) put forth the concept of making the vocational school education terminal, so that, on completing school, a student may take up employment. It suggested the establishment of Multipurpose Schools and a scheme of diversification into seven subject groups to be introduced in the ninth class. Included in these groups were the Technical, the Commercial, the Agriculture, and the Home Science Groups. These proposals for vocationalisation did not receive much support in the country. Only in the recent past did this concept begin to gain acceptance, but is still far from being vigorously implemented.

*Education and National Development, Report of the Education Commission 1964—66. Ministry of Education.

**Raghuram Singh (1983), “Vocationalisation of Education at plus 2”-paper presented at the PERC conducted Seminar on Vocationalisation of Education, Chandigarh.

6.04. As a follow-up of the recommendations of the Education Commission (1964—66), a blue print to introduce vocational courses entitled “Higher Secondary Education and its Vocationalization” was published by NCERT in 1976. As per this document, vocationalization was necessary for purposes of :

1. reducing and eliminating “frustration among the Youth resulting from the non-productive and aimless education offered at present”,
2. providing the nation with a reservoir of skilled manpower, and
3. reducing pressure on the tertiary education facilities.

NCERT recommended that a “large number of vocational streams” be introduced. They should be terminal in character, so that students can be productively employed after completing the Plus 2 stage in a pattern consisting of 10+2 i.e. 10 years of general education followed by 2 years of vocational education.

6.05. It is of interest to note that in 1981, in a developed country like the Federal Republic of Germany “of the total number of gainfully employed persons, 64 per cent have undergone trade (vocational) training and roughly 9 per cent training in higher education i.e. University or College”, Akalin (1981)* a ratio, as such, of 7 from the vocational stream to 1 from the academic stream, as against a ratio of 1 to 1 proposed by the Education Commission (1964—66).

6.06. Clearly, restructuring our educational system to strengthen the vocational component is the need of the day.

6.07. It is instructive to take stock of the progress that has been made in this pursuit of vocationalising education. Table 6.1 presents some relevant statistics.

6.08. From Table 6.1 and some other facts one can readily infer that :

1. The target of 50 per cent students at Plus 2 stage taking up vocational courses is far from being achieved; the 60,000 students so engaged in class XI in 1983 constitute less than 5 per cent of the student population in class 11.
2. Only 9 States and 3 Union Territories have begun the process of vocationalizing education.

*Akalin, Oguz (Editor), 1981, Vocational Training in Federal Republic of Germany, Bildung Und Wissenschaft.

the process of vocationalizing education Thirteen States and 6 Union Territories have yet to make a start. Schools affiliated to be Central Board of Secondary Education, including Kendriya Vidyalaya, have also not begun to vocationalize in any significant sense.

3. Except for the State of Tamil Nadu and, to a lesser extent, Maharashtra, vocationalization in the states listed in Table 6.1 has yet to take off.

TABLE 6.1—Progress in Vocationalising School Education
(Data extracted from MISRA et al (1984))

State/Union Territory	Year Vocationalisation Began	During the 1st year		1983-84	
		Student enrolment in Class II	No. of institutions offering Vocational Programmes	Student enrolment in Class II	No. of Institutes Offering Vocational Programmes
Andhra Pradesh	.. 1979	516	22	3,310	107
Assam	.. 1983	NA*	16	NA	16
Gujarat	.. 1977	NA	28	3,701	66
Haryana	.. 1983	1,920	22	1,920	22
Karnataka	.. 1977	NA	13	4,450	109
Kerala	.. 1983	819	21	219	21
Maharashtra	.. 1978	NA	NA	10,508	250
Tamil Nadu	.. 1978	24,400	709	30,085	940
W. Bengal	.. 1976	2,500	99	NA	53
Delhi	.. 1977	707	17	734	15
Pondicherry	.. 1978	NA	NA	195	7
Andaman and Nicobar..	1981	NA	NA	NA	NA

*NA—Not Available.

*Misra A.K. et al (1984), "Role of NIE in Vocationalization of Education"
National Seminar on Vocationalization of Education, Delhi.

6.09. That vocationalization is essential is now a well accepted principle. Anyone not convinced of it needs only to consider the plight of many of our graduates who hold degrees but have neither the skill to produce goods nor the ability to provide services, and, instead of contributing to national development, are a drain on the system. Their general education has equipped them with nothing but a degree. In fact Brij Kishor (1984)* infers from a study of data from the National Sample Survey that "It is rather disheartening to note that the incidence of unemployment rises linearly with education in India".

6.10. Why then, one may ask, is the progress towards vocationalization so slow? In the Foreword to the NCERT document of 1976 Rais Ahmed, Director of NCERT, observed that "there is a long and difficult transition between accepting this (vocationalization) in principle and implementing it in practice. This is so, because the new demands not only require an internal restructuring and modification of content in education, but even more, require strong links to be developed between.....the school, and the departments.....concerned with 'development'.....New consciousness and thinking are, therefore, needed both among educationists and the leading people in these other spheres of life". That the progress towards vocationalization is slow is precisely on account of the continuing absence of these "strong links" and absence of the "new consciousness and thinking", as evidenced by the following facts :

1. It took a decade after the Education Commission (1964—66) made its recommendation, for NCERT to present a blue print for implementation.
2. The Apprenticeship Act has yet to be amended to cover students who go through the Plus 2 vocational courses.
3. During the 5th Five-Year Plan Vocationalization of Education was a scheme sponsored by the Central Government, but it was discontinued in 1979.
4. Promoting Vocationalization is being treated primarily as an activity of the Education Department. There is no inter-departmental thrust. Only in the State of Tamil Nadu is vocationalization a programme of the party in power, and is being pursued vigorously by the entire state Government.

*Brij Kishor (1984), "Vocationalization of Education-a Diagnostic View from the Outside"-paper presented at the National Seminar on Vocationalization of Education, New Delhi.

5. There is little attempt being made to convince parents and students of the desirability of undertaking vocational courses. Instead of effective counselling, students at the bottom of lists of academic merit are often being pushed into the vocational stream, thereby attaching to it the stigma of being the inferior stream.
6. The emphasis on Plus 2 vocational courses being terminal is yet another damper. Students view it as a dead end. What is necessary, instead, is to create a tertiary system for vocational study so that students can see a palpable scope for career development.
7. Perhaps the biggest drawback is that little attempt is being made to persuade employers to alter the eligibility requirements for those jobs where a degree is not necessary and a Plus 2 vocational stream student can fit better.

6.11. Apart from the facts enumerated above one must also recognize that introducing vocational study in schools requires new teachers, new text-books, new laboratories, and that creating such infrastructure requires time and money.

6.12. There is clearly a national consensus now that vocationalization of school education is a long overdue reform. Only in Tamil Nadu does one feel that a recognition has dawned that vocationalization is not just a reform but has the seeds of a revolution (Reghuram Singh 1983).

6.13. Punjab prides itself as being in the forefront of socio-economic progress in the country. In the sphere of vocational education also, it initiated a scheme as early as 1964 known as Practical Arts Education. It was designed to "develop in the students respect for dignity of labour and to introduce them to modern technology. It was also ultimately to help eradicate unemployment". Singh (1970)*. This training was introduced in the form of a hobby. Neither did it have a place in the assessment system for students, nor, indeed, did it have a slot in the time table. It was organized either before or after school hours. Although 181 schools introduced the scheme, it was unable to achieve its objectives. In 1973-74, therefore, the scheme was altered and included as part of the regular curriculum in the form of an elective subject in classes 6 to 8.

6.14. Two years later the vocational education pattern in Punjab was again altered as per the recommendations of a

*Singh, AVM Harjinder (1970), Practical Arts Education in the State of Punjab, Office of the Adviser, Technical Education, Punjab.

high level Committee under the Chairmanship of the then Finance Minister. The new pattern was designed "to initiate the students to the world of work in the age group 11—14 and acquaint them with the basic hand tools of day to day use, while at the higher secondary stage it was intended to help the student to acquire skill in some work which could enable him to get absorbed in agriculture, industry or factory or set up his own work on self-employment basis on the completion of school education" (D.P.I., 1976)*. At the higher secondary stage as many as thirty trades were thus introduced in 50 higher secondary schools on an experimental basis. This attempt did not succeed; the vocational component was totally inadequate for making students fit for employment after completing school. The attempt may be viewed as one at the vocationalization of education in that a vocational subject was added to the existing general education subjects. It does not fall into the pattern of the 10+2 vocational stream visualized by NCERT (1976)/Education Commission (1964—66).

6.15. That Punjab has been convinced of the utility and urgency of vocational education is evident from the fact that it went ahead with its plans for vocationalization in its existing educational pattern without waiting for the 10+2 pattern to take root in the State, with the hope that the vocational programme would be "strengthened further on the adoption of 10+2+3 pattern of education " (D.P.I. 1976).

6.16. After the consideration, the Commission is convinced that not only should Punjab adopt the 10+2 pattern of school education, but also that vocational education should be promoted as a viable alternative to general education. The commission has in the previous section enumerated reasons as to why vocational education as a stream, as suggested by NCERT, has been slow in gathering momentum. In the section that follows it considers the NCERT proposal in depth, and offers its considered views on various facts of the NCERT scheme. At this juncture we wish to state that Vocational Education is imperative for the growth of Punjab and for the fulfilment of the aspirations of its people. But for Vocational Education to take firm roots in the state we need to pay careful attention to establishing the "Strong links" mentioned by Rais Ahmed and referred to in the previous section. Whatever vocational training exists today is being organised by the user departments, such as the health department or the industries department. This training has no links with the school system. In states where Vocational Education has been introduced, the attempt appears to be to locate it in schools, and it is, thus, substantially divorced from the user departments—the links are again missing. The Commission strongly feels that in Punjab Vocational Education be introduced in such a

*DPI (1976), Education Then and Now Director of Public Instruction, Punjab.

manner that the links between the school and the departments concerned with development are formed and constantly strengthened to mutual advantage. It is with this end in view that it suggests, as will be apparent hereafter, that Vocational Education in the fields of agriculture, commerce and home science be introduced in the school environment, but that in the field of engineering be located in ITI's, ITC's etc. and that in the field of health care be located in existing Training Schools run by the Health department and new training schools be established in the environs of Primary Health Centres and selected District Hospitals. And so that the links are forged and nurtured the commission is of the view that whereas the Department of Education and the Department of Technical Education and Training should maintain their individual identities and remain separate, they should be placed under the charge of the same Minister to enable fruitful and purposeful collaboration between the two departments. Collaboration with other user departments such as medical etc. could be established through their representation on the State Council of General and Vocational Education. The Minister may have two advisory committees: one for general education and the other for vocational education.

6.17. NCERT and the Government of India have been urging upon states to establish their own State Councils for Vocational Education so that the vocational activity can receive effective guidance, promotion and coordination. The Commission would like to go a step further, and recommend the establishment of a compact State Council for General and Vocational Education, which should be a statutory body vested with the power and the responsibility of accrediting institutions at the Secondary level and above, as well as, with the powers of certification after due assessment of the performance of students by appropriate Boards of Education. Only with such a Council can Vocational Education get the necessary fillip; the Council would ensure proper integration of the vocational programmes with the general programme, would ensure that vocational programmes are organised to suit the requirements of user agencies, would take steps to evolve a tertiary level continuing education programme for students going through the vocational stream so that they can, in due course, better their career prospects and also take steps to ensure that employers give due recognition to students of the vocational stream by amending the eligibility requirements for jobs which vocationally trained students can perform more competently.

6.18. It is of interest to note that facilities for providing vocational education exist today for a maximum of about 20,000 students (See Table 6.2)*. By 1991 about 3,40,000 students would be at the Senior Secondary stage, and this figure at the turn of the century would be about 5,10,000. Although the Education Commission (1964-66) had expressed

the hope that by 1986, 50 per cent of students would be engaged at the higher secondary level in pursuing vocational education, we in this Commission feel that it would take substantially longer to achieve such an objective. We feel we should begin more modestly, and work towards creating facilities for vocational education for 15 per cent by 1991 and 25 per cent by 2001. In view of the fact that today the infrastructure for vocational education is most developed for the engineering field, a greater percentage of students opting for vocational education may be channelized into this field initially; only by the turn of the century should these be an attempt to provide facilities for a more balanced mix among different fields as indicated below.

<i>Vocational Field</i>	% in 1991	% in 2001
Agriculture	... 5	10
Commerce	... 30	30
Engineering	... 30	20
Health Care	... 5	10
Home Science	... 30	30

6.19. With these objectives in view the Commission has considered this issue of vocational education and proposed a tentative plan as described in the sections which follow.

The NCERT
proposal.

6.20. The proposal for vocational education made by NCERT (1976) and further amplified by the National Review Committee chaired by Dr. Malcolm Adiseshiah (1978)* visualizes that students joining class 11 will pursue one of two spectra : the General Education Spectrum or the Vocationalized Spectrum. The former, although it would be terminal for many students, is intended "to prepare the student for university education in the arts or sciences or for professional studies", whereas the latter is based "on the truth that while education cannot produce jobs, vocationalized education makes it more likely for an individual to get a job or to be his own master by either starting a new productive activity or a service which may satisfy a felt need of the community." The features of the General Educational Curriculum at the Higher Secondary level have already been dealt with in the previous chapter.

6.21. The features of the vocationalized spectrum suggested may be listed as follows:—

1. (a) Provide a large number of vocational streams.

*Below para 6.49.

*Adiseshiah, M.S. (1978). "Learning to Do" Report of National Review Committee for Plus Two Curriculum of school Education, Ministry of Education and Social Welfare, Government of India.

- (b) Programme and training of each stream be designed to be terminal, after which the student is competent to seek employment.
2. Training should not be "for any specific vocation (since, in the event of not finding employment in that particular vocation, one's training would be wasted). The training has to be for a family of vocations."
 3. Use the semester and the credit system for designing the Plus 2 programmes for both General Education and Vocationalized Spectra so as to have a flexible system to accommodate:
 - (a) "Combining periods of full-time and part-time study with work";
 - (b) transfer of students from the general education spectrum to the vocational spectrum and vice versa after having studied in a particular spectrum for a semester or more;
 - (c) introduction of bridge courses so that students who have completed a vocational programme can pursue general education at the tertiary level; and
 - (d) varying duration of vocational courses which need not all be exactly 2 years.

6.22. Apart from these features, the NCERT document also presents some *administrative guidelines for implementing* their proposal. Some of these are listed below:—

1. In offering students the choice of programme to follow a careful balance has to be ensured between "the needs of the individual and those of the society. The individual cannot have unlimited freedom in choosing his course of study". It would be necessary, therefore, to provide guidance and counselling facilities in higher secondary institutions, and "consideration of merit in relevant school subjects becomes a factor" that would have to be given weightage.
2. Education at Plus 2 stage must be considered a part of school education and controlled and monitored by the relevant school authority. To avoid large scale physical displacement it may continue to be located, as at present, in colleges and in other institutions.

3. Vocational streams to be offered should be identified by conducting districtwise surveys to assess demand.
4. To limit expenses in introducing a wide variety of vocational streams all of which have a considerable training component, an attempt should be made to use facilities of public and private establishments for organising training.
5. To plan, monitor and promote vocational education, each state should set up a State Council for Vocational Education.

6.23. The Adiseshiah Committee (1978) also made specific proposals as regards the various *components of the course programme* for the Vocationalized Spectrum which, they recommended, should consist of :

1. Language, with a time allocation of 15 per cent.
2. General Foundation Courses with a time allocation also of 15 per cent consisting of courses designed to increase the awareness of the student regarding his environment as well as of the broader aspects of the vocation he has chosen to pursue.
3. Elective with a time allocation of 70 per cent for subjects related to the specific vocation; 50 per cent is visualised to consist of practical work.

6.24. The commission has considered the NCERT proposal in depth, and our views on the features of the vocationalized spectrum, on the administrative guidelines for implementation, and on the components of the course programme are as follows:

On Features of the Vocationalised Spectrum

1. Diversification of school education is imperative to ensure that students are able to pursue a course of study for which they have an aptitude, and through which they can subsequently contribute to national development. It, therefore, follows that a large number of vocational streams designed to prepare students for employment be introduced at the Plus 2 level. They should however, neither be termed nor considered terminal, and conscious effort should be made to search for continuing education and career development avenues for each of them.

2. It is essential that at the conclusion of the Plus 2 vocational education, a student must have the knowledge and skills to be accepted for employment in his vocational stream, but at the same time he must also have a broader understanding of the vocation to which his stream belongs so that, if necessary, he can, with on the job training, fit into a job or an activity related to his stream. (This is catered to in the commission's proposal by providing a core programme for each of the five groups of vocational streams identified, as discussed in paras 6.30 to 6.51)

3. The programme of education for the Plus 2 stage with its emphasis on diversification can thrive only in a flexible framework such as the one provided by the semester and the credit systems. These systems should be utilised. In principle, the commission agrees with the concept of completing one's credit requirements on a full-time or a part time basis as well as with the concept of transfer of a student from the vocational spectrum to the general education one and *vice versa*; it, however, feels that there may be practical limitations in the implementation of these two concepts at this juncture. Nevertheless, these are desirable features that one should work towards. The commission, however, disagrees with the concept of bridge courses—they have no place in a credit system. In the event of a student wishing to change his educational goals midstream, he must pick up the necessary credits in the required courses to effect that cheque. The credit system can, of course, readily cope with course programmes of different durations. The Commission, however, feels that all vocational programmes at the end of which the student is to be awarded the certificate of Senior Secondary, should be of 2 years' duration. Those of longer duration should earn him, in addition to this certificate, a diploma of an appropriate standing.

On Administrative Guidelines for Implementation

1. The *raison d'être* for diversification of school education and offering a variety of programmes to choose from is the recognition of the fact that different individuals have different abilities and aptitudes, and that society will benefit most, if each individual is assisted in developing his innate capabilities and encouraged to contribute in the sphere of his relative advantage. In

channelising a student to a particular course it is essential, therefore, that one must first assess his aptitude for it. The need for establishing proper guidance and counselling facilities must receive the highest priority. The entire concept of vocational education would be placed in jeopardy, if students are streamed into different programmes using *ad hoc*, arbitrary mechanism, especially those in which academic merit is used as the sole or primary criterion.

2. The Commission concurs with the view that all education, both General Education and Vocationalised spectra, must be controlled and monitored by one relevant school authority, and that to avoid large scale displacement they may continue to be located as at present. In Punjab this means that the Plus 2 General Education Spectrum may continue in schools as well as colleges and the vocationalised spectrum be introduced in schools and colleges and may continue in ITI's, ITC's, Single Technology Institutes, Health Department's Training Schools, Polytechnics, Dental Colleges, Medical Colleges etc. but that the course programme, the curriculum of the courses, the assessment of students etc. would all be controlled and monitored by a single authority so charged by the Government.
3. NCERT has been urging states to conduct district-wise surveys to determine vocational opportunities with the idea that one must determine demand to be able to organise supply. One cannot help feeling that this effort is highly misplaced. Matching supply with demand at such micro-level is a futile exercise for many reasons; among them one may list :
 - (1) the difficulty in assessing demand in the organised sector, because industry often does not or cannot disclose their requirement,
 - (2) total lack of data from the un-organised sector,
 - (3) changing demand with time, and
 - (4) time lag in generating supply.
 In determining the specific streams that should be offered to Plus 2 vocational students one should be guided, instead, by (1) the general understanding of the requirements of the area, (2) the aptitude of students, (3) infrastructure

available in the school and in the neighbourhood; and (4) a State-wise perspective to ensure that no vocations are being ignored, and that no vocations are beginning to dominate the scene.

4. The training component in the vocational spectrum is essential, if the students are to develop acceptable standards of skill. Often, but not always, the facilities necessary for providing training are capital intensive. No country can afford to create such facilities exclusively for training. Attempts, as such, have to be made to use facilities of public and private establishments existing in the neighbourhood of the school.
5. Establishing a State Council for Vocational Education appears to the commission to be treating the Vocational spectrum in isolation. The commission is, therefore, recommending a Council that can take a total view; it is recommending the establishment of a State Council for General and Vocational Education and Training as discussed elsewhere in this report.

On Components of the Course Programme (Curriculum)

1. The commission agrees with the recommendation of the Adiseshiah Committee that Language should have a time allocation of 15 per cent.
2. For General Foundation Courses, the Commission recommends a cut of 5 per cent i.e. an allocation of 10 per cent instead of 15 per cent. This cut is introduced, since courses designed to increase the students awareness of the broader aspects of the vocation he has chosen to pursue are included in the core programme provided for each of the five groups of vocational streams proposed by the commission (See paras 6.30 to 6.51).
3. The remaining 75 per cent of the time is allocated for subjects related to each vocation. Fifty per cent suggested by Adiseshiah, is visualised for practical work and 25 per cent each for the core programme of the relevant group of vocational streams and for subjects relevant for the specific stream itself.

6.25. In the preparation of this plan the commission sought to broadly conform to the blue print proposed by NCERT. The previous paragraph 6.24 indicates points of

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departure and the commission's reasons for its different approach. This plan has as its basis the following four principles:

1. The proposed arrangement must utilise the existing infrastructure and resources to the maximum,
2. All vocational education for children of school going age in the state should be coordinated activity, and should fit into this overall plan,
3. At the conclusion of the Plus 2 vocational education, a Student must have the skill to be employed in his/her trade specialisation but at the same time must also have a broader understanding of the trade to which his/her specialisation belongs so that, if necessary, he/she can, with on the job training, fit into a job or an activity related to his/her specialisation, and
4. Attempts be made to identify or design a continuing education programme for each vocational specialisation or stream.

6.26. These four concerns are reflected in the following four salient features of the plan :

1. Vocational stream be evolved in 5 distinct Groups consisting of :
 - a. Agriculture
 - b. Commerce
 - c. Engineering
 - d. Health Care
 - e. Home Science
2. For each Group, in addition to the common programme on the study of language and general foundation courses, there should be a broad-based core programmes as well as separate training programmes for specific streams identified within each Group constituting the overall plan of study in the Plus 2 vocational programmes. All students opting for different specific streams within each Group will together be exposed to the core programme, and will separately pursue the training programme relevant to their respective specific stream.
3. Vocational programmes in the Commerce and Home Science Groups be provided in schools and colleges where Plus 2 programmes are introduced, since facilities for these programmes

do not require a heavy capital investment. Programmes for these groups currently running in ITI's etc. should continue after being modified to conform to the requirements of the Plus 2 Vocational Spectrum. Vocational programmes in the Agriculture Group requiring farm land be organised initially in 11 Higher Secondary and 158 High Schools, which, under the Agriculture Scheme have farms and irrigation systems attached to them. For the Engineering Group programmes running in ITI's, ITC's etc. be modified to conform to the requirements of the Plus 2 Vocational spectrum. Health care Group programmes currently being run in Medical Colleges and Training Schools run by the Health Department be suitably altered to serve as Plus 2 Vocational Spectrum programmes.

4. Regardless of the environment where Plus 2 programmes of the vocational spectrum are located, and regardless of the administrative agency conducting these programmes, all of them must conform to the academic requirements to be formulated by the Board of Senior Secondary and Further Education to be established as per the Commission's recommendations detailed elsewhere in this report.

6.27. The proposed plan for each of the five Vocational Groups identified above is presented in turn hereafter. Prior to this presentation, however, it would be appropriate to highlight the concept of a core programme listed as the second feature above.

6.28. As has been observed in paras 6.20 to 6.28 the proposal visualised that (1) there be a large number of vocational streams, (2) that the training programme in each stream be of sufficient depth to ensure the student's competence for immediate employment, and (3) that the training should not be solely for one specific stream but for a family of streams so as to increase the student's potential for employment. These somewhat contradictory objectives have not been catered to in the Plus 2 vocational programmes currently functioning in other states. The plan proposed herein caters to them by grouping specific streams into five families listed as five groups in feature one above, and for each group proposing a training programme consisting of 3 parts : (1) Study of language and general foundation courses which would be common for all students of the Plus 2 vocational programmes. (2) study of a broad based core programme relevant for the group to which the chosen specific stream belongs, and (3) study and training programme for the chosen specific stream itself. For

example, students wishing to become fitters, machinists, welders etc. would all be considered to be in the Engineering Group. For each of these specific streams students would undergo a study and training programme designed to make them competent fitters, machinists, welders etc. Further, they would all be required to study a common core programme relevant for all students in the Engineering Group. Such a core programme would include subjects such as Materials and Mensuration, Measuring Instruments and Tools, Drawing and Estimation, Elements of Electricity, Human Relations, Self-Employment and Production Culture, details of which are presented in table VI-I-3 in Annexure VI-I. Not only would exposure to such a core programme give the students of fitting, machining, welding etc. the required background for an engineering craftsman but would also give them a perspective which would motivate them and, at the same time, enable them to fit into jobs related to their specific stream, if they do not secure employment in the specific stream itself.

6.29. Tentative core programmes for each group have been presented in Annexure VI-I. These programmes, as well as the specific programmes for each stream, will have to be worked out in detail (see Table 6.6*). This task should, in due course, be commissioned by the Board of Senior Secondary and Further Education, the establishment of which has been proposed elsewhere in this report. This Board must also evolve a tertiary education programme in the vocational spectrum to ensure career development possibilities. Some indication of such possibilities is considered for each group in the presentation of the plan, which follows :

Agriculture
group existing
infrastructure.

6.30. Infrastructure in the form of farm land, instructors and helpers was provided to 182 schools in Punjab under the Agriculture Scheme. Table 6.4 on next page gives their details. Altogether 133 posts were created for M.Sc. lecturers and B.Sc. Agriculture Masters in addition to 32 J.B.T. teachers and 188 helpers.

TABLE 6.5 : *Proposed specific streams for Agriculture Group*

1. Mixed Farming—crops and seed production; dairy and poultry farming (requires land and irrigation facility).
2. Fruit, vegetable and flower cultivation nursery raising and production (requires less land).
3. Poultry farming, fish farming, bee-keeping and mushroom growing.
4. Agri-business I-sale of seeds, fertilizers, pesticides and plant protection equipment.

*Below para 6.33

5. Agri-business II-processing, preservation and sale of cereals, fruits, vegetables and animal products.

6. Agro-services-repair, maintenance and hiring of agricultural machinery and equipment.

6.34. In Appendix VI-II is presented a detailed study conducted for the Agriculture Group by a team of experts at the College of Agriculture, Punjab Agricultural University, Ludhiana. Similar studies would have to be conducted for other groups as well to work out details of curriculum and training for those group tasks which, in due course, should be commissioned by the Board of Senior Secondary and Further Education.

6.35. In view of the fact that students who take up this Group would, by and large, be self-employed, career development would tend to depend primarily upon individual effort and initiative rather than on acquiring further training. It is felt that attempts to design a tertiary education system in this Vocational Group would be premature at this stage. This is the advice tendered to us by the expert group in the Agricultural University, Ludhiana with which we wholly agree.

6.36. No doubt, a sizeable infrastructure exists in the private sector in urban areas for this group where individuals are trained to become stenographers, store-keepers, accounts clerks etc. It is difficult to assess the extent of facilities available. In the public sector, courses are offered at the I.T.I.'s, I.T.C.'s etc. and the facilities available are presented in Table 6.6 given below :

Commerce group existing infrastructure.

TABLE 6.6 : Existing Infrastructure for Commerce Vocational Training as available in ITI's, ITC's etc.

<i>Specific Stream</i>	<i>Sanctioned strength</i>
Steno (Punjabi)	... 986
Steno (Hindi)	... 112
Steno (English)	... 576
Secretarial Practice	... 30
Accountancy	... 64
Store Keeping	... 32
Library Science	... 49
	<hr/> 1849 <hr/>

Note : In 1983-84 the enrolment was almost 100 per cent but students successfully completing the course totalled about 50 per cent only.

6.37. Unlike the situation which exists as far as utilisation of engineering trade courses in ITI's etc. is concerned (see 6.40) enrolment in Commerce Courses is almost 100 per cent, although only 50 per cent candidates are able to successfully complete these courses.

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6.38. Since training facilities for specific streams in this group are not very capital intensive, this vocational group lends itself well to introduction in the existing school and college environments. Existing facilities in ITI's etc. must continue to be utilised.

6.39. Table 6.7 given below lists the specific streams for this group, and indicates some possibilities for career development. Table VI-1-2 in Annexure VI-I presents the core programme for this group.

TABLE 6.7—Proposed Specific Streams for Commerce Group

Serial No.	Specific Stream	Career Development possibilities
1	Commercial Artist	.. Graphic Designer
2	Typist	.. Steno
3	Steno	.. Secretary
4	Storekeeper	.. Materials Manager
5	Book Keeper and Accountancy Assistant	.. Commercial Officer
6	Library Science Assistant	.. Librarian
7	Banking Assistant	..
8	Sales Assistant	..
9	Export Assistant	..
10	Office Assistant	.. Office Superintendent
11	Public Relations Assistant	.. Public Relations Officer
12	Tourist Guide	..
13	Computer Card Puncher	..
14	Legal Assistant	..
15	Telephone Exchange and Telax Operator	..

Engineering
group existing
infrastructure.

6.40. In view of the establishment of ITI's, ITC's and Single Technology Institutes catering to the requirements of specific industries, the infrastructure for vocational training in the Engineering Group is by far the most developed. In these

institutions the duration of courses is either 2 years (for 20 specific streams) or 1 year (for 15 specific streams). There are 85 Government institutions in the state located both in the rural and urban areas. The present capacity of these institutions for providing training in the Engineering Group is about 7260 persons per year (See Table 6.8 below). Students are admitted into these courses after the completion of class VIII or Class X, depending on the specific stream.

TABLE 6.8 : *Existing infrastructure for Engineering Vocational Training available in ITI's, ITC's and Single Technology Institutes.*

Programme	ITI	ITC etc.	Total
2 Years after Class X	1832	300	2132
1 Year after Class X	..	20	20
		Total	after Class X
			2152
2 Years after Class VIII	2032	..	2032
1 Year after Class VIII	2888	188	3076
	Total after Class VIII		5108
		Grand Total:	7260

Note.—For the class completing their course in 1983-84, the enrolment was 62 per cent of sanctioned seats and the students successfully completing the course totalled 50 per cent of those enrolled and 34 per cent of the sanctioned strength.

6.41. A study of Technical and Vocational Institutions in Punjab was commissioned by the commission, and the work entrusted to the TTTI, Chandigarh. From their report, as well as other sources, the following observations can be made:

1. Infrastructure available in these institutions is grossly under-utilised (See note at bottom of Table 6.8).
2. These institutions are unable to attract good and motivated students as evidenced by the large drop-out and failure percentages.
3. Employers feel that ITI's produce manpower with skill but with inadequate breadth of knowledge and the knowledge of fundamentals.
4. Training is oriented to produce manpower for the organised sector and not for self-employment.

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6.42. That the facilities of ITI's etc. are underutilised can perhaps be traced to the fact that ITI training does not offer very attractive career prospects. Since students joining ITI's have not finished school, the possibility of taking advantage of existing tertiary education facilities for them at a future time is not available. The industry finds their skills useful, but since they are lacking in fundamentals and theory, career development is slow or non-existent.

6.43. This plan as such suggests that Vocational programmes in the Engineering Group be organised at ITI's, ITC's etc. in a modified form, so that they may meet the requirements of the Plus 2 Vocationalised Spectrum. Students of such a system will have the skills the ITI's now provide, will have a better theoretical background, which would be included as part of the Plus 2 programme, and will have completed their schooling to the 12th class, thus opening possibility of further education in the tertiary education system, and as such will feel more motivated than the present ITI students. This arrangement would also ensure the maximum utilisation of the existing infrastructure. The proposed specific streams are suggested in Table 6.3 below, which also indicates possibilities for career development. This table also provides information as to areas in which the infrastructure already exists for providing advanced training for career development. The core programme for the Engineering Group is presented in Table VI-I-3 in Annexure VI-I.

S. No.	Stream	Any existing infrastructure	Career Development	Any existing infrastructure for advanced training
1.	Fitting	Yes	Air-Cond. and Ref. Hyd. and Pneu Appliances. Machine Maint. Diesel Mech. Die Making Motor Mech. Farm Machinery	Yes No No Yes Yes Yes Yes
2.	Turning	Yes	Fine Turning	Yes
3.	Grinding	Yes	Precision Grinding,	Yes
4.	Milling	Yes	Tool Milling Jig Boring	Yes Yes
5.	Machinist	Yes	Die Making	Yes
6.	Welding	Yes	Argon Arc. Welding	No

Serial No.	Stream	Any existing infrastructure	Career Development	Any existing infrastructure for advanced training
			Al./st. Steel welding	No
			Resistance welding	No
7.	Blacksmithy	Yes	Forging Techniques	No
8.	Sheet Metal Work	Yes	Press Working	No
9.	Instrument Mechanic	Yes	Radio TV	Yes
			Vehicle Inst. Mech.	No
			Domestic Appliances	No
			Watch Repairing	Yes
10.	Carpentry	Yes	Pattern Making	No
			Sports Goods (Wood)	No
11.	Painting and Polishing	Yes	Electroplating	Yes
12.	Electronics	Yes	Advanced Electsonic equipment maint.	No
13.	Lineman	Yes		
14.	Wireman	Yes		
15.	Founder	Yes	Precision Casting	No
16.	Draftsman (Mech)	Yes	Engineering Design	No
17.	Draftsman (Civil)	Yes	Estimator Building Technology	No
18.	Surveyor	Yes	Estimator	No
19.	Electrician	Yes	Domestic appliances maintenance	No
20.	Plumber	Yes		
21.	Printer	Yes	Advanced Printing Technology	No
22.	Tanner (Leather)	Yes	Advanced Tanning Technology	No
23.	Leather Goods (Sports)	Yes		
24.	Leather Goods (Footwear)	Yes		
25.	Book Binding	Yes		

Health care
group existing
infrastructure.

6.44. The Government of India accepted in 1974 the recommendations of the Kartar Singh Committee, which provides that one Multipurpose Worker (male) and one Multipurpose Worker (female) be available for every 5,000 persons among the rural population. To train this cadre the Punjab Health Department has seven Training Schools functioning in different parts of the State with a capacity to train 480 MPW's each year (see Table 6.9 given below). The Medical Colleges in Amritsar and Patiala train some more Health Care Vocation personnel as also indicated in this Table.

TABLE 6.9 : Existing Infrastructure for Health Care Vocational Training

Specific Streams	Number of Seats	Location
MultiPurpose Worker (Female)	420	Training Schools, Health Department
Multipurpose Workers (Male)	60	Ditto
Pharmacist	Nil	Women's Polytechnic, Jalandhar
Dental Hygienist	4	Dental College, Amritsar
Laboratory Technician	40	Medical Colleges, Amritsar and Patiala
Compounders	180	Ditto
Radiographers	16	Ditto
Total	740	

Proposed
Plan.

6.45. The training of Health Care workers is a much too specialised activity to be carried out in the school environment. Special Training Schools along the lines of ITI's seem to be a more appropriate model. To begin with one may run Plus 2 Vocational Courses for MPW's in Training Schools which are currently being run by the Health Department. Since MPW's are to function primarily in the rural areas, it would seem appropriate to have new Training Schools for training MPW's in the rural environment, say, next to some selected Primary Health Centres; separate medical staff would, of course, be necessary for these Training Schools. Training for other streams, as listed at Serial No. 2 to 11 in Table 6.1, should be conducted at Training Schools set up near selected district hospitals, so that they can utilise infrastructure available at these hospitals for training purposes with marginal augmentation of facilities wherever necessary; separate medical staff would of course be necessary for these schools as well. It was felt that such training schools should not be located near Medical colleges and affiliated hospitals, where they are unlikely to get the attention they deserve.

6.46 The specific streams proposed for the Health Care Group are presented in Table 6.10 given below, which also indicates career development possibilities. Table VI-I-4 in Annexure VI-I gives the core programme for the Health Care Group.

TABLE 6.10: Proposed Specific Streams for Health Care Group

<i>Serial Specific Streams Number</i>	<i>Career Development Possibilities</i>
1. Multipurpose Worker	Health Assistant/Ophthalmic Assistant/Nurse
2. Dental Assistant	Dental Hygienist/Dental Mechanic
3. Laboratory Technician	
4. Operation Theatre Assistant	
5. Optician	
6. Orthopaedist	
7. X-Ray/Radiographer	
8. Compounder	Pharmacist
9. Physio-Therapist	
10. Occupational-Therapist	
11. Orthopaedic Technician	

6.47. As in the Commerce Group, a sizeable infrastructure probably exists in the private sector, producing tailors, hair dressers, teachers and so on. The courses offered and seats available in ITI's, ITC's etc. are presented in Table 6.11 given below. One notes that these facilities are being almost fully utilised, and that the percentage of candidates completing the course programmes is the highest when compared with Engineering and commerce programmes.

Home Science group existing infrastructure.

TABLE 6.11 : Existing Infrastructure for Home Science Vocational Training in ITI's, ITC's etc.

<i>Specific Stream</i>	<i>Sanctioned strength</i>
Cutting and Tailoring	... 2746
Dyeing and Printing	... 64
Embroidery and Needle Work	... 1372
Knitting	... 192
Hand Weaving	... 16
Preservation of Food and Vegetables	... 128
Teacher Training	... 840
Total	... 5358

Note : For the class completing their course in 1983-84, the enrolment was 91 per cent of the sanctioned strength but students successfully completing their course totalled about 78 per cent of enrolment and 69 per cent of the sanctioned strength.

Proposed
Plan.

6.48. Again, as for the Commerce Group, providing training facilities for specific streams in the Home Science Group is not very capital intensive, and can, therefore, be readily organised in the school and college environments. One must not consider that this group is meant exclusively for girls. One can readily see boys making successful career in many of the specific streams which are presented in Table 12 given below. Some indication of career development possibilities is given in this table. The core programme is presented in Table VI-I-5 in Annexure VI-I.

TABLE 6.12.—Proposed Specific Streams for Home Science Group

Serial No.	Specific Streams	Career Development possibilities
1	Cutting and Tailoring	.. Dress Designing
2	Embroidery and Needle Work	
3	Knitting	
4	Dyeing and Printing	.. Textile Designing
5	Hand Weaving	
6	Food Preservation and Canning	.. Food Product Manufacturing
7	Baking and Confectionery preparation	.. Hotel Catering
8	Hair Dressing	
9	Beauty Culture	
10	House Keeping	.. Hotel Management
11	Managing Day-care Centres/Creches	
12	Nursery Teacher Training	
13	Music	.. Music Teaching
14	Dancing	.. Dance Teaching

Conclusions.

6.49. It is apparent that not only is Punjab convinced of the utility of vocational education but, over the years, has established a substantial infrastructure for it (see Table 6.2 given below) :

TABLE 6.2—Summary of available Seats and their Utilisation

Group	Available seats	Unutilised capacity in per cent	Fail percentage in terms of sanctioned strength
Agriculture	7,280*
Commerce	1,849	..	50
Engineering	7,260	38	66
Health Care	740
Home Science	5,358	10	31
Total	22,487		

*Assuming 40 students in each of the 182 schools under the Agriculture Scheme.

What is unfortunate, however, is that these facilities are being under utilised or utilised without a proper direction, foundation or follow up. It is time that the plan proposed in the previous section be adopted and implemented by the state not in the spirit of another reform but, as in Tamil Nadu, with the consciousness that it contains the seeds of a revolution. The state has witnessed the Green Revolution and the White Revolution, and it is time to initiate another revolution so vital to the nation as well as to the welfare of our largest resource, i.e. our human resource.

6.50. For this revolution, in making an effective use of human resources through vocational education, to succeed, certain pre-conditions need to be attended to. These are :

1. The introduction and popularisation of the Plus 2 Vocationalised Spectrum must not be left solely to one or two education related departments of government. It must be treated as a vital programme of the STATE GOVERNMENT AS A WHOLE. Its introduction and implementation should find a prominent place in the political manifestos of all parties. Every member of the legislature, public servant, and enlightened citizen must give it his/her whole-hearted support. They should persuade students to join this educational stream and also persuade employers to reorient their thinking, so that for most vocation oriented jobs, vocationally trained individuals be given preference over mere degree holders.
2. The ability to use one's hands, the familiarity with materials and tools, the "do-it-yourself" urge, a respect for the artisan and an appreciation of the dignity of labour need to be introduced not in class II but need to be inculcated in students from childhood—refer to discussion on importance of work-experience in Chapter V.
3. Instead of emphasising the "terminal" aspect of the Plus 2 Vocationalised Spectrum, what needs to be stressed is that vocational education at Plus 2 level is not a dead end. It enables one to seek employment immediately on completing school, but one can also, at any convenient time, pursue courses at the tertiary level and advance one's career prospects. The tertiary education components need to be developed as indicated in Chapter X.
4. The Apprenticeship Act provides for :
 - (a) Trade Apprentices,
 - (b) Diploma Engineer Apprentices, and

(c) Graduate Engineer Apprentices.

Students who have completed classes 6 to 10 can be taken as Trade Apprentices under the Act. ITJ students are, thus, treated as Trade Apprentices. Students of the Plus 2 Vocationalised Spectrum remain outside the ambit of this Act. The Act needs to be modified, and until it is, Punjab Government should finance a parallel equivalent scheme for the students of Plus 2 vocationalized spectrum.

5. Eligibility requirements for employment in many jobs as well as for further education need to be looked at *de novo*, and radically altered so that a graduate degree is not given the premium it has enjoyed in the past.
6. Guidance and Counselling facilities must be set up in schools to constantly evaluate the aptitude and abilities of individual students, so that they can be rationally guided into opting for courses in which they have an innate advantage.

6.51. In implementing the proposed plan for the Vocationalised Spectrum it is possible to be side-tracked, if one begins to assess the success of this concept of vocational education by comparing the number of those who complete these programmes with the number who find employment in their respective vocation. Over a substantial period of time such a criterion is not unreasonable to assess the utility of a particular vocational programme, but it is neither a good yardstick to assess one programme in the short run, nor, indeed, is it at all relevant to determine the success or the utility of the concept of Plus 2 Vocationalised Spectrum as a whole. In view of the irrelevance of the present pattern of general education, any deviation from it to a vocation oriented pattern is better *per se*. Even if an individual does not find employment in the vocation he has been trained for, the individual who has gone through a vocational programme is more employable and has the potential of making a more meaningful contribution to society than the person who has gone through an education pattern of the present out moded style. Vocational education, as such, is not just a means to train people for today's requirements, but it is important to recognise that it is also a more worth while end in itself than is the end to provide every one with a general education.

ANNEXURE VI-I

CORE PROGRAMMES

TABLE VI-I-1 *Core Programme for Agriculture Group*

1. Business Management — Concept of Management, management as an activity and as a process. Universality of management. Nature and process of planning and decision making. Communication and motivation. Theories of motivation. Introduction of functional management, especially personnel management and marketing. Credit for agricultural vocations—sources procedures of procurement and repayment.
2. Farm Management — Definition, Importance and scope of farm management. Relationship of farm management with other sciences. Basic principles of farm management, budgeting and planning. Farm Records and business analysis. Management of land, labour, machinery and capital. PRACTICAL: Important acts relating to agriculture. Preparation of enterprise budgets. Business analysis of a particular farm.
3. Human Relations — Concept of human relations. Types of human interaction. Inter-personal perception and social behaviour. Functioning in groups. Inter-personal cooperation and conflicts. Diagnosing problems of human relations. Effective speaking and listening practices in group discussion. Studying acceptance and rejection of ideas.
4. Principles of Agronomy — Climatic classification. Weather and crop production. Classification of crops. Tillage and seeding practices. Crop

relations. Mixed cropping. Role of water in crop production. Scheduling irrigation to crops. Dry land farming. Production of kharif, rabi and other crops including climatic requirements and improved agronomic practices. Seed production technology. Weeds—characteristics, association with crops and methods of control.

PRACTICAL : Recording and interpretation of climatic data. Identification and collection of crops and seeds and cultivation practices of crops. Methods of fertilizer application. Use of land tools and other implements. Measurement of irrigation water. Identification and collection of common weeds. Application of herbicides in crops. Purity and germination tests. Rogueing. Familiarisation with seed processing equipment.

5. Soils and Fertilisers

— Earth crust and its composition. Weathering and soil formation processes. Soil profile. Major soils of Punjab. Saline and sodic soils and their use. Soil as a three phase system. Mechanical composition of soils. Soil structure. Soil fertility—historical development. Essential nutrient elements—forms, functions, deficiency symptoms, availability and cycling in soils. Soil organic matter and its decomposition. Organic manures. Fertilizers—Composition and behaviour of soil. Bio-fertilisation. Introduction of fertilizer control order.

PRACTICAL: Determination of morphological characteristics. Examination of soil profile. Study of soil map of

Punjab. Particle size analysis. Determination of soil moisture.

Determination of organic carbon, available nitrogen, phosphorus and potassium. Gypsum requirement of soils.

6. Plant Protection

- Introduction to insects and pests. Principles and methods of pest control. Introduction to plant pathogens and diseases. Principles and method of plant disease control. Study of various pesticides. Factors affecting their toxicity and problems associated with their use. Study of various types of pest control appliances. Selection, operation and maintenance of equipments.

PRACTICAL : Anatomy of insects with *AK* grasshopper as a type. Metamorphosis. Identification of major pests. Study of various plant pathogens. Diagnosis of plant diseases. Methods of seed and soil treatment. Familiarisation with important pesticides and preparation of their dilution. Safe use of pesticides. Use of various types of pest control appliances. Common troubles with machines and their remedies.

TABLE VI-I-2 : Core Programme for Commerce Group

1. Human Relations
 - Individual as part of an organisation, group relations, team work, effective communication, ethics, individual's role in community, nation building etc.
2. Business Mathematics.
 - Ledgers, cash book, income and expenditure, assets and liabilities, profit and loss, simple and compound interest. business machines, computer awareness.

3. Office Culture — Filing, retrieval systems, tidiness, etiquette, letter writing, use of reference books, reprography.
4. General Knowledge — Post-independence Indian history, Constitution, municipal government, banking, public sector and private sector agencies, newspapers, exposure to foreigners.

TABLE VI-I-3 : Core Programme for Engineering Group

1. Materials and Mansuration — Behaviour of steel, aluminium, brass, wood, plastic etc. Strength of materials, manufacturing methods, measurement of length, area of polygons, volume of cubes, spheres, Trigonometric relationships.
2. Measuring Instruments and Tools — Steel rule, tapes, callipers, verniers, micrometers, balances, thermometers etc. calibration, least count, errors. Use of common tools, their selection and repair.
3. Drawing and Estimation — Lettering, conventional signs and symbols, scales, plan, section, isometric views. Free hand drawing, direct costs, indirect costs, estimation, pricing.
4. Elements of Electricity — Sources, ohm's Law, measurement of voltage, current, resistance etc., series and parallel circuits, AC and DC, motors generators, household wiring, home appliances, electric measuring instruments.
5. Human Relations — Same as for Commerce Group.
6. Self-employment and Production Culture — Accountancy, banking, municipal laws, advertising, marketing, production targets, material management, safety requirements, conservation of energy, labour laws, industrial acts.

TABLE VI-I-4 : Core Programme for Health Care Group

- | | | |
|-----------------------------------|--|--|
| 1. Human Relations | | — Same as for Commerce Group |
| 2. Health Consciousness | | — Population dynamics, family planning, environmental sanitation, self care, preventive medicine, health policy, health institutions etc. |
| 3. Hospital Culture | | — Various types of hospitals and health centres, expected care, staff job descriptions and linkages, team function, managerial functions, referral linkage. |
| 4. Hygiene and Nutrition | | — Personal Hygiene, elements of nutrition, eating habits, balanced diet. |
| 5. Human body and its functioning | | — Core information on anatomy (body parts, structure) physiology (normal functioning) and pathology (abnormal functioning due to illness) as applied subjects which have a bearing on the job description. |

TABLE VI-I-5 : Core Programme for Home Science Group

- | | | |
|-------------------------------|--|--|
| 1. Human Relations | | — Same as for Commerce Group. |
| 2. Hygiene and Nutrition | | — Same as for Health Care Group. |
| 3. Art, Design and Aesthetics | | — Sketching, lettering, elements of design, colour harmony. |
| 4. Self-employment Culture | | — Accounting, Banking, Municipal Laws, advertising, marketing. |
| 5. Health Consciousness | | — Same as for Health Care Group. |

SUMMARY OF

CHAPTER VI— VOCATIONAL EDUCATION

1. Crucial to the new pattern of education, as recommended by the Education Commission (1964—66), is the concept of diversification of courses at the plus 2 stage. It provides for a distinct stream of vocational courses at this stage. As a follow-up, the NCERT prepared a blue print to introduce vocational courses entitled 'Higher Secondary Education and its Vocationalisation' in 1976. Except for Tamil Nadu and, to a lesser extent, Maharashtra, Vocationalization in the States has yet to take off.

(6.01-02)

2. The incidence of unemployment rises linearly with education in India. Our graduates, who hold degrees in general education, instead of contributing to national development, are a drain on the system. Vocationalization of education, therefore, is the need of the hour. It will require an internal restructuring and modification of content in education and strong links between the school and the departments concerned with man-power development for the needs of our economy. The absence of such strong links and of the new consciousness and thinking explains the slow progress of vocationalization.

(6.09)

3. When one notes that in a developed country like Germany the ratio of people with a vocational bias to those with university degrees is 7 to 1, it becomes apparent that the need to vocationize education in India is really urgent. And yet, the progress in this direction is painfully slow. In 1983 a mere 5 per cent of the student population was in the vocational stream.

(6.05)

4. To accelerate the pace of vocationalization the steps that need to be taken are : (a) to amend Apprenticeship Act; (b) to seek inter-departmental thrust instead of treating it primarily as an activity of the Education Department; (c) to provide effective counselling to convince parents and students of the desirability of undertaking vocational courses; (d) to provide further education channels; and (e) to persuade employers to change the eligibility requirements for those jobs where an academic degree is not required.

(6.09-6.10)

5. The introduction of vocational education is a long overdue reform. It requires new teachers, new text-books, new laboratories, strong linkages with industry; and the creation of such infra-structure would require time and resources.

6. Punjab initiated a scheme known as 'Practical Arts Education' as early as 1964, which was a step in the direction of vocationalizing education. Through this scheme it was attempted to develop in the students a sense of the dignity of labour. It was made a part of regular curriculum in 1973-74 in the form of an elective subject in class VI to VIII. Two years later the scheme was altered to initiate the students to the world of work in the age group 11—14 years and acquaint them with basic hand tools of day-to-day use. At the higher secondary stage thirty trades were introduced in 50 selected schools. These attempts though laudable however did not go sufficiently far in training them for any trade and were, therefore, not successful.

(6.13-6.14)

7. For effective organisation of Vocational education, the first prerequisite is to set up the State Council of General and Vocational Education, with the power and responsibility of accrediting institutions at the secondary level and above. The Council should also have the powers of certification after due assessment of the performance of students by appropriate Boards of Education. The functions of the State Council of General and Vocational Education will be :

- to ensure proper integration of the vocational programme with the general programme;
- to ensure organisation of vocational programme to suit the requirements of user agencies ;
- to evolve a tertiary level continuing education programme for students of vocational stream so that these courses are not considered terminal ; and
- to ensure that employers give due recognition to students of the vocational stream by amending the eligibility requirements.

(6.17)

8. In pursuing vocational education the State should start modestly in a phased manner and work towards creating facilities for vocational education for 15 per cent of students by the year 1991 and 25 per cent by 2001. It has at present capacity of training about 20,000 students in its I.T.Is., I.T.Cs., etc. The estimated student population at the senior secondary would be 3,40,000 by the year 1991 and 5,10,000 by 2001. The suggested break up of students entering the vocational stream in keeping with the potential for employability, and the speed at which the infrastructure can be created, is given below :

<i>Vocational Field</i>	<i>% in 1991</i>	<i>% in 2001</i>
Agriculture	5	10
Commerce	30	30
Engineering	30	20
Health Care	5	10
Home Science	30	30

Though these targets are comparatively on the moderate side, we are guided by realism prompted by paucity of financial resources. On the other hand if financial resources are forthcoming from the Central Government in the form of subsidy or assistance for this vital programme, it would be very much within reasonable limits to enhance these targets suitably.

(6.18)

9. The main features of the proposed vocational spectrum should be :

- a large number of vocational streams designed to prepare students for employment be introduced at the plus 2 level;
- at the conclusion of plus 2 vocational education a student must have the knowledge and skills to be accepted for employment and have a broad understanding of the vocation to which his stream belongs so that if necessary he/she with on the job training could fit into a job related to his/her specialization ;
- flexible framework as provided in the semester and the credit system should be utilized, but bridge courses should not be provided at least in the initial stages of implementation which eventually would need revision ; and
- the duration of the course, after which a Certificate of Senior Secondary is to be awarded should be two years.

(6.24)

10. The administrative guidelines to be followed for the implementation of vocational education are as follows :

- for channelising students into different vocational streams, the establishment of guidance and counselling services should receive the highest priority;
- both general and vocational education at the Plus 2 may continue in schools and colleges, but the courses, the assessment of the students etc. would all be controlled and monitored by a single authority so charged by the Government;
- in determining the specific streams that should be offered at Plus 2, one should be guided (i) general understanding of the requirements of the area, (2) the aptitude of students, (3) the infra-structure available in the school and neighbourhood, and (4) a statewide perspective to ensure that no vocations are being ignored; and

—for providing training to the students the facilities of public and private establishments existing in the neighbourhood of the school have to be used.

(6.24)

11. The break-up of time allocation for different components of the course programme may be as follows :

(a) Languages	15%
(b) General Foundation Courses	10%
(c) Subjects related to each vocation	25%
(d) Practical Vocational Work.	50%
	(6.24)

12. The underlying principles of the proposed plan should be :

—Optimum utilization of existing infrastructure and resources;

—all vocational education of school going children to be treated as co-ordinated activity, and should get into the overall plan; and

—attempts to be made to identify or design a continuing education programme for each vocational specialization.

(6.25)

13. The salient feature of the plan should be :

—Vocational streams to be evolved in five distinct groups, namely :

- (a) Agriculture
- (b) Commerce
- (c) Engineering
- (d) Health Care, and
- (e) Home Science.

—In addition to the common programme on the study of languages and general foundation courses there should be a broad-based core programme as well as a separate training programme for all specific streams.

—Vocational education in the field of Commerce and Home Science to be provided in schools and colleges where Plus 2 programmes are introduced because these programmes are not capital intensive.

Agriculture programmes be organised only in those schools where facilities of farm land and irrigation exist.

- For the Engineering group, programmes running in ITIs, ITCs etc. be modified to conform to the requirement of Plus 2 vocational stream.
- In the field of Health Care, the vocational programmes be located in existing training schools run by Health Department and new training schools be established in the environs of Primary Health Centres and District Hospitals, Special Training Schools along the lines of I.T.I.s seem to be more appropriate for Health Care workers.
- The programmes of vocational education must conform to the academic requirements to be formulated by the Board of Senior Secondary and Further Education

Agriculture Group :

14. Substantial infrastructure in the form of farm lands and irrigation facilities is available in 182 schools in Punjab. Thus the agriculture group should be introduced only in schools where adequate facilities exist.

(6.30—6.32)

15. The core programme for the agriculture group may include the study of the following :

- (a) Business Management
- (b) Farm Management
- (c) Human Relations
- (d) Principles of Agronomy
- (e) Soils and Fertilizers; and
- (f) Plant Protection.

Annexure VI-I

16. The proposed specific streams for this group are as follows :

- (a) Mixed Farming;
- (b) Fruits, Vegetables and Flowers Cultivation;
- (c) Poultry Farming, Fish Farming, Bee-keeping and Mushroom Growing;
- (d) Agri-Business I —Sale of seeds, fertilizer, pesticides and plant protection equipment;
- (e) Agri-Business II — Processing, preservation and sale of cereals, fruits, vegetables and animal products; and
- (f) Agro-service — repair, maintenance and hiring of agricultural machinery and equipment.

(6.33)

17. As the students opting for the vocational group would seek self-employment, it is felt that attempts to design a tertiary education system in this vocational group would be premature at this stage.

(6.34)

Commerce Group

18. The training facilities for the commerce group are not very capital intensive and exist both in the public and private sector. This vocational group can, thus, be introduced in schools and colleges besides utilising the existing infrastructure available in ITI's and ITC's.

(6.36-6.38)

19. The core programme for the Commerce Group may consist of :

- (a) Human Relations,
- (b) Business Mathematics,
- (c) Office Culture, and
- (d) General Knowledge.

Annexure VI-I

20. The specific streams for this group may include :

- (a) Commercial Artist
- (b) Artist
- (c) Steno
- (d) Storekeeper
- (e) Book-keeper and Accountancy Assistant
- (f) Banking Assistant
- (g) Sales Assistant
- (h) Export Assistant
- (i) Public Relations Assistant
- (j) Tourist Guide
- (k) Computer Card Punchers
- (l) Legal Assistant
- (m) Telephone Exchange and Telcom Operator

(6.39)

Engineering Group

21. The infrastructure for vocational training in the engineering group is the most developed one but at the same time is under-utilized and fails to attract good and motivated students. It produces manpower with skills for the organised sector only but with inadequate knowledge of fundamentals.

Keeping in view these limitations, it is suggested that vocational programmes in the engineering group should be organised in ITI's, ITC's etc. in a modified manner to meet the requirements of the Plus 2 stage.

(6.40-6.43)

22. The core programme for the engineering group may include the study of :

- (a) Material and Mensuration
- (b) Measuring Instruments and Tools
- (c) Drawing and Estimation
- (d) Elements of Electricity
- (e) Human Relations
- (f) Self-Employment and Production Culture.

Annexure VI-I

23. There are a number of specific streams e.g. fitting turning, machinist, instrument mechanic, surveyor, printer, book-binder etc., which can be provided to the students of the engineering group. An infrastructure for the training in these specific streams exists and career development possibilities are also available.

(6.43)

24. To begin with, vocational courses for multipurpose workers (MPWs) may be started in the training schools set up by Punjab Health Department. Since MPWs have to function primarily in rural areas, new training schools should be opened in rural environment, with separate medical staff. For the training of others para-medical workers training schools set up near district hospitals should be utilised.

(6.45)

25. Core programme for Health Care Group may include the study of :

- (a) Human Relations,
- (b) Health Consciousness,
- (c) Hospital Culture,
- (d) Hygiene and Nutrition, and
- (e) Human body and its functioning.

Annexure VI-I

26. The following specific streams are proposed for the Health Care Group :

- (a) Multipurpose Worker
- (b) Dental Assistant
- (c) Laboratory Technician
- (d) Operation Theatre Assistant
- (e) Optician
- (f) Orthopist
- (g) X-Ray Radiographer
- (h) Compounder
- (i) Physio-Therapist.

(6.46)

Home Science

27. The existing infrastructure for Home Science courses is being fully utilized. More training facilities can be readily created in schools and colleges as these are not very capital intensive.

(6.47-6.48)

28. The core programme for the Home Science group may include the study of :

- (a) Human Relations,
- (b) Hygiene and Nutrition,
- (c) Art Design and Aesthetics,
- (d) Self-employment Culture, and
- (e) Health Consciousness.

Annexure VI-I

29. The specific streams for this group may include training in :

- (a) Cutting and Tailoring,
- (b) Embroidery and Needlework,
- (c) Knitting,
- (d) Dyeing and Printing,
- (e) Hand Weaving,
- (f) Food Preservation and Canning,
- (g) Baking and Confectionery,
- (h) Hair Dressing,
- (i) Beauty Culture,
- (j) House Keeping,
- (k) Managing Day-Care Centres/Creches,
- (l) Nursery Teachers Training,
- (m) Music, and
- (n) Dancing.

The specific streams are not meant exclusively for girls. Boys can also make successful careers in many of these streams. (6.48)

30. The State of Punjab is convinced of the unility of vocational education and has established substantial infrastructure for it. The need is to implement the proposed plan of vocational education with conscntiousness as it has been implemented in Tamil Nadu.

31. In nutshell the preconditions for an effective use of human resources through vocational education for the success of the scheme are :

- For popularisation vocational education must be treated as a vital programme of the State Government as a whole. Everyone should give his/her whole-hearted support to the plan.
- Students be guided to join the vocational stream.
- Employers be reoriented to prefer vocationally trained individuals over mere degree holders.
- The values of 'Do it yourself', 'Dignity of Labour' and 'Respect for Artisan' be inculcated in the students from childhood.
- Tertiary education component for vocational education be developed.
- The Apprenticeship Act be modified to include students from the vocational stream within its ambit. The Government should finance a parallel equivalent scheme for students of the Plus 2 vocational stream.
- Eligibility requirements for employment as well as for further education need to be looked into afresh. (6.50)

CHAPTER VII

TEACHER EDUCATION

7.01. The teacher is central to all educational processes. It would be an exercise in futility to conceive of any reform in education without simultaneously thinking of improvement in the quality of teachers involved in the process. It is true that the teacher requires the basic infrastructure and facilities, such as laboratories, equipment, aids, instructional material etc. as added inputs for efficient functioning. Providing this infrastructure is, no doubt, essential, and it is expensive. But it has to be provided in the long run, if the standards of education have to be improved. This can, however, be done in stages depending upon the ability of society to generate resources. Circumscribed by the constraints of physical resources the system, at least for some time, will have to lean heavily and probably exclusively on teachers for major reforms in education. It will, therefore, be essential to streamline teacher education programmes in the State in order to build potential among them to fulfil their future roles.

7.02. Through carefully planned teacher education programmes and by altering the academic environment in which it is imparted, followed by well thought out in-service education for continuously up-dating their knowledge, the teaching community needs to be transformed into a class of educators from being merely communicators of pre-established content, which, though important, is also being communicated indifferently at present. For modernising the system of teacher education in the State, additional resources will be needed which in the context of the expected outcomes in terms of improved educational standards, should be accepted as a sound investment. The teaching profession, we believe, will only be in a position to fulfil its future roles, provided teacher education is given a structure adaptable to modern educational concepts.

7.03. Teacher Education in Punjab, as elsewhere in the ^{Major} country, has witnessed only some changes in terms of ^{issues.} renaming and shuffling of courses. Their content remains the same, and hardly bears any relevance to our changing needs. Several Commissions and Committees have stressed the need for revamping the teacher education programmes. The NCTE recently brought out a document : "Teacher Education Programmes—A Framework". However, despite good intentions and sincere efforts teacher education has not responded to the challenges before it.

7.04. During our discussions with the school teachers and members of the faculty in the colleges of education, it was

unequivocally stated that the training programmes, as at present structured, do not bear any relevance to teaching and learning situations in the schools. The same applies to the formal instruction in the general methods of teaching various subjects. The learning experiences so essentially needed for the professional preparation of teachers lack proper organisation and innovative experimentation. The persons, prior to their entry into the profession, and also in-service teachers, are not being provided sufficiently enriched experience of a practical nature in content, areas of guidance and counselling, educational technology and evaluation. A sense of professionalism is glaringly lacking among teachers, and no attempts are being made to inculcate or arouse it.

7.05. The neglect of proper teacher education programmes is evident from the fact that the colleges and the university Departments of Education have maintained only superficial linkages with the schools as also with the main stream of general education. These institutions of higher education, more or less, function in isolation. Even though a majority of the colleges of education in the State have well equipped physical facilities, hardly any headway in qualitative improvement in teacher education has been made and the age-old traditional curriculum continues to operate.

7.06. The plight of practice teaching is still worse. At places the practising schools are either not readily available or shy away in offering cooperation to the teacher-educators. The pupil-teachers alike take teaching practice very casually. It may also be mentioned that there is no objectivity in the matter of evaluation techniques and unhealthy competition is resorted to in the matter of awarding higher marks and divisions to the students. These and similar other factors are responsible for inadequate professional preparation.

7.07. Along with the problems of practice teaching there is also the question of the relevance of some of the existing programmes of teacher education. The teaching of some school subjects is linked with the prevalent practice and policies of recruitment in the schools. For instance, there are two streams for imparting training for language teachers in Hindi and Punjabi. One pertains to those with traditional qualifications of Gyani/Prabhakar before entering into the training programme. The other is open to those in colleges of education who have had Hindi or Punjabi as a subject in the first degree course or those having a Master's Degree in any of these two languages. According to the prevalent policy of recruitment persons with oriental qualifications of Gyani/Prabhakar get preference. This creates an anomaly from the point of view of training programmes and the relevance of these programmes to the employment situation, since:

- The teaching of Hindi or Punjabi as offered in the Colleges of Education becomes redundant;

- The Gyani/Prabhakar teachers working in exclusive middle schools cannot be given the desired work load as per norms;
- The educational preparation for Gyani/Prabhakar follows immediately after Matriculation. This is preferred to teachers coming through the other stream i.e. B.A. with Hindi and Punjabi for employment.

7.08. As per prevalent practice in schools the teachers recruited for the teaching of Social Studies are given additional assignment of teaching English. This does not only create an anomalous situation but is also educationally a very unsound policy as such. In the universities in the state English is offered as a compulsory subject for the first degree. But it does not occupy the status of a fullfledged subject in all of them, which leaves much to be desired so far as the teaching of this subject is concerned.

7.09. Similarly arrangements for the training of teachers for Social Studies at the school stage are inadequate in more ways than one. There is no composite training programme in the subject of Social Studies in the colleges of education which could include Geography, History and Civics. In the present set-up these three subjects together cannot be offered as a group for the first degree course in any of the universities in the State. Secondly, the training programmes are not designed for making up the deficiency by providing content-cum-methodology courses in that subject. Again, certain subject combinations offered at the first degree level do not automatically entitle a person to become a Social Studies teacher, but such persons do get employment for the teaching of Social Studies. This deficiency has to be corrected through effective in-service training programmes.

7.10. Although pre-service and in-service programmes constitute a continuum of training for the teachers, yet the two remain apart in the present set-up. In-service training is far from satisfactory and whatever attempts are being made in the name of providing in-service training to teachers, are random. The teachers, for good reasons, show hardly any enthusiasm for such programmes, because they fail to provide enriched experiences academically or professionally.

7.11. We have, in the above paras, pointed out some mismatches in the education programmes and the needs of the system at two levels, namely, the primary and the secondary and for different subject categories of teachers, as existing at present in the Puniab. While doing so, we have been equally conscious of the glaring deficiencies in the existing teacher education system as a whole to equip the teachers of the future to play their role effectively in the education of tomorrow, which will present demands of a different kind.

Teacher
education
focus.

7.12. It is evident that the professional preparation of the teacher has to match the demands of our emerging educational expectations. It would appear to us that the dominant thrust areas of our education during the closing years of the present century would be the following :

- Organising pre-primary education as a support educational activity with a view to improving the quality of our education.
- Adoption of alternative strategies of non-formal education to cover all those in the age-group 6—14, who, for one reason or the other, were deprived of formal schooling.
- Broadening of the scope of general education.
- Introduction of vocationalisation, work experience and population education.
- Introduction of value-oriented education by way of striking a balance between the concomitance of advances in science and technology and humanistic values.
- Organising Counselling Services in the educational system with a view to enabling individuals to make correct choices according to their interest, capacities and aptitudes.
- Efficient use of new technologies in education and use of the multi-media approach for facilitating learning and supplementing the prevalent practices.
- Formal culmination of the educational process in continuing education.
- Spread of literacy and adult education.

7.13. In order to make teacher education relevant to the needs and aspirations of the pupils and the community, the imperatives of its programmes at various levels will have to take into account the relevance of the curriculum to the emerging trends mentioned above. It requires reformulation and restatement of objectives as guiding principles for working out the details and strategies to reorganise teacher education in the state.

Objectives.

7.14. Ignoring hierarchical differentiation among teaching levels, after careful deliberations we suggest the following objectives from which stagewise strategies can be derived:

- Sensitize the teacher to the emerging trends in the development of Indian society and its orientation.
- Sensitize the teacher to the Indian values and process of valuing.

- Enable the teacher to acquire an understanding of the pupil and his environment.
- Equip the teacher with the competencies to design and implement instructional programmes suited to the differential aptitude of the learners through a grounding in educational technology and principles and practices of counselling.
- Equip the teacher with skills of action research so as to enable him to find solutions for day-to-day professional problems.
- Develop competencies in the teacher link educational activities with the world of work.
- Develop in the teacher an urge for continuing professional education on a life-long basis.

7.15. Keeping in view the above objectives, we recommend the following scheme of courses for all the categories of training programmes : Reorganisation of courses of education.

- (a) Basic Courses;
- (b) Special Training Programme Package (STPP);
- (c) Student Teaching.

7.16. The basic courses will include the following: Basic courses.

- (i) Teacher and Education in the Emerging Indian Society;
- (ii) Psychology of Instruction (models of teaching-learning);
- (iii) Instructional courses comprising analysis of main decision areas such as identification of objectives, task analysis, content analysis, designing teaching-learning strategies, followed by evaluation;
- (iv) Value Education;
- (v) Working with Community and Work Experience.

The entire teacher education curriculum needs to be designed in such a way that integration among theory courses takes place (philosophical, psychological and sociological principles operate and interact; values are woven into the skill-dominated areas of methodology of teaching subjects as well as in the attitude building areas of work experience, health, physical and recreational education including social service).

7.17. Special Training Programme Package will have to be designed according to the levels of education, for which the training is being imparted and in which a sufficiently sound theoretical base has already been built either in the general education programme or through the basic courses. The STPP will include :

- (i) Class Management;
- (ii) STPP on some of the basic courses such as instructional courses, value education, work experience and working with community;
- (iii) STPP on teaching subjects and production of a support system by using indigenous material;
- (iv) Health and Physical Education Programme;
- (v) Counselling and Educational Technology.

Some of the STPP Programmes for primary school teachers include development of instructional materials on child psychology, skills of communication, simulation, experimentation etc. Action research would get embedded in some of the components of STPP.

7.18. Student Teaching will become a continuous process with STPP. The training of primary school teachers will essentially follow the content-cum-methodology approach. The training will have to be imparted in a variety of teaching situations, such as micro-teaching setting, simulated situations, multiple class teaching strategies, multiple subject teaching, polytalent teaching and non-formal situations. Student teaching needs to be designed as a blend of various models, such as, information processing personal behaviour, interaction and social interaction. We expect all institutions of education to have their own practising schools.

7.19. All categories of teachers on the making will follow courses on the methodology of teaching different subjects suitably adjusted to the levels to be manned by them after training. Practice teaching also needs to be carried on in a situation which a teacher has to face when placed in the school. The use of multi-media and educational technology will also be made during the training programme.

7.20. We would recommend the content-cum-methodology approach to be followed for the preparatoin of secondary teachers as well. This would imply additional weightage to be given to practice teaching. We hold the view that secondary teachers be given intensive practice teaching in one major area of concentration and the other subject for practice teaching be included as a minor concentration as

against the existing practice of giving equal weightage to both the subjects. This, in our thinking, would encourage a sense of belonging to an area of one's own interest and would foster professionalism.

7.21. The STPP and student teaching will have to be organised according to different levels of teaching and the availability and use of indigenous resources. If it is possible to give pedagogic theory with general education, the repetition of the same could be avoided during the training period, thereby saving time for more practical work. In this manner professional preparation of teachers will get differentiated from academic courses of education.

7.22. The courses of study for pre-service teachers, as suggested by us, include theory, STPP and practice teaching. The STPP gets integrated with both theory and practice teaching. We are of the view that in terms of weightages 40 per cent be assigned to theory, 20 per cent to STPP and 40 per cent to practice teaching, because we expect colleges of education to adopt the content-cum-methodology approach. This would mean more time to be devoted to student teaching which, we believe, would enable pupil teachers to attain greater competency in the content as also proficiency in communication and other teaching skills.

7.23. The integration of basic courses, STPP and student teaching would largely favour the adoption of modular courses. There will be an inbuilt internal assessment for STPP. For the evaluation of basic courses and skill in teaching both the systems of external and internal evaluation could be utilised. Evaluation.

7.24. We would recommend continuous assessment as a matter of policy for evaluating student performance periodically, thereby making it possible to get a feed back for improving teaching-learning strategies. The recommended courses of study, we hope, would interweave the two competing approaches, namely, discipline-oriented and problem-oriented. This programme would do away with the isolation of training colleges from the schools.

7.25. It has been our experience in the country that to break away from conventional practices takes time and, at moments, becomes impracticable due to several reasons. Keeping this in mind, we recommend the setting up of an autonomous Institute of Educational Studies and Development.

7.26. In order to make it possible to revamp Teacher Education, modernise courses of study as indicated in the following paragraphs, bring pre-service and in-service training on the same continuum, and introduce innovated practices in teacher education programmes with ease and efficiency, we recommend that an autonomous *Institute of Educational* Autonomous
Institute of
Educational
Studies and
Development.

Studies and Development be set up in the State. We believe that this type of institution is a necessity, if we really mean to radically improve teacher education programmes both for pre-service and in-service. The existing institutions are engaged in a routine type of training and it takes time to see through the experiences and adaptations of innovative practices. In the prevalent system we have various academic bodies in the Universities, not all of them directly concerned taking their own time in making decisions. This practice generally delays the operational part of introducing changes, and by the time the changes become operative, they tend to become outdated. Further, it is always difficult to break through the vested interests of pressure groups.

7.27. While we expect the universities to perform their functions of teaching and research for developing a strong theoretical base of education, we hope that the proposed Institute of Educational Studies and Development will take care of the functional and professional aspect of teaching and learning in actual class room situations.

Pre-service
Teacher
Training
Programmes.

7.28. This Institute can offer pace setting courses at various levels of teacher education. Although details of the courses need to be amplified, yet we vividly have in mind the introduction of courses like B.Ed. (Primary), B.Ed. (Secondary), B. Ed. (Science Education), B.Ed. (Commerce), B.Ed. (Agricultural) etc. followed by M.Ed. courses in each of these specialities, which would be a departure from the traditional courses; and the introduction of such courses would improve educational standards in schools. Besides, a four year integrated course in education after 12 years of academic preparation is worth giving a fresh trial, which task can conveniently be performed by the Institute.

7.29. Further, it looks strange that primary school teachers are taught by B.Eds. who, at no stage, had any grounding in teaching such classes or were conversant with the methodologies to be employed for the teaching of children at the primary school level. We strongly recommend that those who man training institutions for primary teachers must have a thorough knowledge relevant to the level. This can happen only when we have B.Ed. (Primary), B.Ed. (Secondary) etc. in courses of education. The supervisory staff, too, needs to be drawn from such trained personnel as have been cultured in this fashion.

In-service
Teacher
Training.

7.30. The proposed Institute would function as the main centre for developing materials for the in-service education of teachers in collaboration with the Directors of Education and SCERT. The in-service training of teachers, which is a neglected segment of Teacher Education, would be the direct responsibility of the Institute in addition to the various courses and programmes that it would organise.

7.31. The organisational structure of the proposed Structure. Institute would include the following departments:—

- (a) Languages (Hindi and Sanskrit, Punjabi and English);
- (b) Mathematics;
- (c) Sciences (Physical and Biological);
- (d) Social Sciences;
- (e) Teacher Education;
- (f) In-service Training;
- (g) Guidance and Counselling and Evaluation;
- (h) Adult Education, Non-formal Education and Continuing Education;
- (i) Educational Technology;

7.32. We have conceived of the Institute of Educational Studies and Development as a pioneering Institute like the All India Institute of Medical Sciences, Indian Institutes of Technology, Institutes of Business Management etc. which have established themselves as institutes of national importance in their respective fields, and have, beyond doubt, demonstrated success in organising pace setting programmes, which by all standards have given new orientations different from what could have been possible through conventional institutions in those fields.

7.33. We recommend that the proposed Institute of Educational Studies and Development be granted an autonomous status. Experience shows that the type of autonomy granted to IIT's has resulted in improving educational standards, and has been operationally more conducive to creating a better intellectual environment in these institutions. The type of autonomy that we have in mind for the Institute of Educational Studies and Development is closely in line with this autonomy. We have a very strong faith in accepting the view, point, beyond doubt, that the greater the extent of autonomy and the extent of resources made available to educational institutions established for running pace-setting and innovative programmes, the greater will be the pay-back even in financial terms due to the impact of such institutions felt in imparting quality education.

7.34. The rapidity of educational change and the phenomenal growth of knowledge have necessitated a continuous programme of in-service teacher education as a life-long process. The present in-service teacher education programmes leave much to be desired. At the primary level such programmes are not available in the measure they are needed.

7.35. At the secondary level the three in-service training centres are providing in-service education programmes. Even here the programmes are based on the assessment that discrete short courses provided through various agencies will summate, resulting in improving teacher competency. It has now been observed that this is a fragile assessment.

7.36. Another aspect of the in-service teacher education programmes in vogue in the state is that they require the teacher's presence at a central place for training in a face-to-face, interaction situation. This results in a lot of expenditure as well as dislocation of teaching work because of the absence of teachers from their schools.

Use of media
and Educational
Technology.

7.37. We are of the view that meaningful in-service training programmes can be best organised in an atmosphere of academic excellence and professionalism, such as would be provided by the Institute of Educational Studies and Development. We have, therefore, proposed a separate department of In-service Training which, with the help of the Centre of Educational Technology and by using the Educational Technology approach, should be able to organise up-to-date and modern programmes of in-service teacher training in collaboration with SCERT to be organised as described later.

Centre for
Educational
Technology.

7.38. We feel that an Educational Technology Centre should be established in the Department of Educational Technology proposed to be set up in the Institute of Educational Studies and Development. This department will (a) build up a library of the software available from other sources like CIET, Delhi and Institute of Mass Communication, Delhi. (b) produce software according to the local specific needs of the State; (c) act as a feeder of the ET material to the Staff Development Centres proposed at the district level; (d) monitor the feed back on the material produced and utilised by different target groups, assess their efficacy and utilise the feed back for the refinement of the materials and (e) maintain contact with the State Department of Education and the State Council of Educational Research and Training to assess their needs for ET materials.

7.39. This department will have a sound recording studio, and a video and TV recording studio with an engineering unit and a core of software specialists.

7.40. We are of the view that quality education requires specific capabilities in the teachers and other functionaries in the educational system to be up-dated on a continuing basis. We also feel, as pointed out earlier, that bits of in-service education programmes are not effective. Even longer discrete programmes with face-to-face interaction modalities are not so effective, if given in isolation. Staff Development programmes, in content as well as methodology, need to be organised as a continuous activity on a series of modules with adequate follow-up. We believe in the approach of developing modular courses particularly for in-service training programmes which

can conveniently be given to the teachers at the learning resource centres modified from time to time to update the knowledge of the in-service teachers. We are convinced that school-based in-service teacher education with the minimum essential face-to-face interaction using distance learning methods, with support by supervisory visits, will be more useful.

7.41. For this purpose staff development centres, which will be set up at district headquarters, will act as nuclei. The functions of the District Staff Development Centre will be to (a) provide an instructional material bank having both print and non-print modules for in-service training of teachers; (b) procure instructional material for the training of teachers from the education technology department of the Punjab Institute of Educational Studies and Development; (c) distribute the material among the learning resource centres at the school complex level on demand; (d) assist the Institute of Educational Studies and Development in collecting feed back on the efficacy of the instructional material supplied; (e) assist in the diffusion of innovations; and (f) provide on-the-spot guidance on request from the field staff. We expect that the Staff Development Centres should be adequately equipped with CCTV, video recording and playing back facilities as well as micro computers. The teachers will receive school based in-service teacher education programmes and will come for short periods to the District Development Centres, if needed. The Staff Development Centres will be manned by a core team of specialists in the teaching of mathematics, science, social science and language, a media specialist and a media librarian.

7.42. We propose that learning resources centres be set up in secondary or senior secondary schools. Such centres would cater to the needs of feeder schools within their catchment area. The learning resource centres will have video cassette players, T.V., and audio cassettes along with a print library for students and teachers. Such centres will receive instructional materials, video tapes, audio tapes, film strips, films etc. from the Staff Development Centres with staff to operate. The students and teachers from the feeder schools would thus be in a position to utilise these services.

7.43. We suggest that to start with, these centres may only be set up in Senior Secondary Schools. In the Punjab we have Higher Secondary Schools which are likely to be converted into Senior Secondary Schools. To start with, we propose that 100 of these schools be converted into learning resource centres in the seventh five year plan. Adequate resources, both fiscal and man power, may not be available for a more ambitious plan. Eventually we should aim at providing these facilities in all our Senior Secondary Schools and High Schools in each Complex.

7.44. At the institutional level we propose that all the primary schools should, in due course of time, be provided

with transistor radios and audio cassette players. We feel that low cost cassette players with only playing facilities are sufficient for this purpose. The maintenance facilities for the tape recorders and transistors to be provided to the primary schools may be located in the Senior Secondary Schools, where such facilities would be available as a part of the vocationalisation of the education programme. It is, however, our belief that providing such facilities at the Primary School level at this stage is a bit premature. They could have access to the ET facilities available at the head complex school.

7.45. As pointed out earlier, the implementation of these recommendations, particularly those relating to educational technology, will require the reorientation of all the teachers at different levels of school education. The District Staff Development Centres will undertake this responsibility to organise in-service training of the teachers on a continuous basis, with adequate follow-up. While organising the in-service training programmes, the Staff Development Centres would see that a major part of the training is provided at the learning resource centres with a minimum face-to-face interaction.

7.46. We also feel that only orientation of teachers will not suffice to implement the recommendations of the commission in general, and those relating to educational technology in particular. For this purpose we strongly feel that functionaries other than the teachers at all levels, comprising Heads of Institutions, Block Education Officers, Sub-Divisional Education Officers, and planners at the state level need to be covered through this programme, not for a limited period, but on a continuous basis through the media facilities developed under the programme of educational technology.

Resources.

7.47. The development of ET network at different levels of organisational units is going to cost a substantial amount initially. The non-recurring and continuing cost comes to Rs. 8 crores approximately. On the face of it, the proposition appears to be costly. But keeping in view the improvement in the efficiency of the educational system by way of increased competencies of the professionals (teachers, teacher-educators, supervisors, administrators and planners) and improved student learning it would be worth it. The commission examined the question so as to how the state could mobilise these resources. In this connection the assistance available from the Central Government and the State Government was examined. The commission feels that Central Government assistance supplemented by local resources at this level should make it possible to implement the ET programme in the state.

7.48. Central Assistance is available for the establishment of a sound recording studio and a TV studio. It is a 100 per cent financed scheme which envisages provision for building, hardware and personnel—both technical as well as

academic to prepare software including supporting staff. The commission feels that the State Government should utilise this scheme for assistance from the Central Government.

7.49. Some infrastructural facilities have been made available to the State Government under the Central Scheme for educational technology. We recommend that the facilities available for this scheme should be utilised for the infrastructural facilities proposed to be created for the implementation of the ET scheme. The NCERT provides a scheme of Centres for Continuing Education of Teachers on a 50:50 grant basis. These centres may be established at the district level to develop the Staff Development Centres. However, the additional expenditure for the ET Library at the District/Staff Development Centres, Learning Resources Centre at the School Complex Level and Primary Schools will have to be raised by the State. For this purpose some states have utilized voluntary agencies like Rotary Club, Lions Club and some industrial organisations. The Commission feels that a similar effort can be made in the State of Punjab for raising funds to supplement the resources of the State Government to implement the programme of educational technology particularly at the institutional level. The rest could be financed by taking loans which is the normal resource for financing most capital investments.

7.50. The commission is convinced that if Central Government resources, State Government resources and resources from voluntary agencies are mobilised and put together, it may not be impracticable to implement the scheme of in-service training utilising educational technology, as envisaged above. We also feel that the scheme may be introduced in a phased manner. We have proposed the minimum facilities at the primary school level as well as the secondary school level. These can be supplemented in due course according to the availability of resources that the State Government mobilises from different sources.

7.51. It has been observed that educational technology has not been utilised so far for in-service teacher training. Distance learning strategies involving modular correspondence materials, re-inforcement by Radio and T.V. inputs and followed by very short contact programmes (if considered necessary) could be appropriate modalities for the in-service training of teachers at the learning resources centres. As a matter of fact, we strongly feel that the in-service training programmes should be planned as a sub-system of the educational system.

7.52. The programmes of in-service training need a follow-up for their transfer to the actual teaching situations in the educational institutions to strengthen its retention and effect. The follow-up work can be organised by the unit providing in-service teacher education programmes in the Institute of Educational Studies and Development in collaboration

with the supervisory staff of the Department of Education at the local level.

7.53. Both the Departments of In-service/Training and Educational Technology should be involved in providing the proposed inputs, which will include development of programmes, orientation of resources persons, and establishment of linkages with District and Complex level centres. The revision and renewal of programme packages will become a continuous feature at the Institute level, for which necessary feed-back would be forthcoming through the main monitoring agency, namely, the SCERT. In fact, we would expect a very close liaison among the Directorates of Education, the SCERT and the proposed Institute to effectively manage in-service teacher education programmes in the State.

Incentives
for in-service
teachers.

7.54. In order to motivate teachers for undertaking in-service teacher education programmes regularly both monetary and non-monetary incentives will have to be utilised. In the case of upgrading programmes the teacher should be provided with monetary incentives. However, in the case of updating programmes it would be worthwhile to utilise the non-monetary incentives like accreditation of in-service courses leading to a degree or diploma. Promotion to next higher grades can be made contingent on the completion of specified accredited courses of in-service training. In addition, utilisation of the teachers as resource persons and for any other school visit, deputation to seminars and conferences could also form non-monetary incentives to promote in-service training programmes. Involvement of teachers throughout the process of in-service training right from its need assessment, planning, implementation and evaluation would further strengthen the non-monetary incentives inputs.

Research
on in-service
teacher
education.

7.55. We have not noticed any research efforts in the State relating to in-service teacher education. A built-in system of research and development is essential for the effectiveness of any programme. Research is needed not only to support the planning and implementation of the programme but also for its improvement and for assessing the effectiveness of different modalities of in-service education. The impact of these programmes on the actual performance of the teachers in professional situations and in terms of improved students' attainments needs assessment. This type of research will provide the necessary input for the improvement of in-service education in times to come.

Subject
teacher
association.

7.56. Subject Teacher Associations can do commendable work for updating knowledge and improving upon the teaching competencies of in-service teachers. Such associations can bring out journals for the use of teachers. In their annual meetings matters related to the teaching of specific subjects can be thoroughly discussed which, we are sure,

would enlighten teachers and make them professionally alert and involved. The formation of Subject Teachers' Associations should be encouraged and their functions redirected.

7.57. The setting up of subject Teacher Associations requires attitudinal changes among the teachers and inculcation of a sense of dedication to the profession. It may not be possible at this stage for these associations to fully organise this type of activity; yet its initiation is most essential for the health of the profession. We, therefore, suggest that this task may be undertaken by the Institute of Educational Studies and Development in the initial stages by involving the entire lot of subject teachers in particular subject areas by organising conferences or holding seminars through its own extension centres and also initiating the publication of journals which, in due course, can be taken up by the subject teacher associations on their own.

7.58. In para 7.59 of this chapter we have argued against the differentiation in the cadres of our school teachers, namely, primary teachers with matriculation and J.B.T. qualifications and school masters with B.A./B.Sc. and B.Ed./B.T. as minimum qualifications for entry into service, which is educationally unsound and administratively difficult to manage. Basic qualifications for teacher training programmes.

7.59 We have in mind the role that a teacher will be expected to play in the educational system of the twenty-first century. We know that matriculation as entry qualification for JBT, which was accepted about three decades ago, cannot, in the context of the explosion of knowledge and its subsequent impact on the course content at the primary stage, be accepted as adequate academic preparation for primary teachers. The fresh teachers are expected to stay in the system for three to four decades. Their academic preparation and pre-service training, therefore, should be sound enough to enable them to assimilate all future developments in content and methodologies during their professional career. The growing impact of science and technology in the coming years will increase the complexity of courses at all levels from primary upwards and educational technology, we believe, will become a formidable support system.

7.60. In order to meet the future requirements we feel that the hierarchical differentiation in entry qualifications for different levels of teaching in ten years school cycle will become artificial and outmoded. The suggestion, on the face of it, appears to be ambitious and financially expensive, but we are convinced of the advantages accruable in terms of improved educational standards which would outweigh the marginal additional investment. This model of teacher education will have to be accepted as a future strategy, and it can be implemented by transforming the existing colleges of education into Comprehensive Colleges of Education to look after the training of teachers at different levels.

7.61. In drawing up particular admission requirements we wish to take the position that till such times the hierarchical differentiations are dispensed with, Senior Secondary Certificate (Plus 2 stage) should be taken as the minimum academic preparation for entry into J.B.T. courses consisting of two years' training following the content-cum-methodology approach. Alternatively, after ten years of schooling the trainee, for JBT can be taken into a four years' integrated teacher education programme, of which two years can be in the vocational stream. This implies that content-cum-methodology and pedagogy will be taught throughout the course of four years of training. Then we have the pattern of JBT as 12+2+2.

7.62. The main qualifications for entry into B.Ed. must be raised to 15 years of academic preparation, that is, the first academic degree in the 10+2+3 system, followed by one year of training in a College of Education. All categories of teachers must have this background irrespective of the subject they teach. For language teachers, too, we feel that in addition to the qualifications prescribed presently they should obtain graduation along with BEd. before they could be considered for appointment as Language Teachers.

7.63. We are in favour of recruiting only those for the teaching of English at high school stage, who had offered English as a full/fledged compulsory subject at the first degree level.

7.64. Social Studies Masters, too, must have offered one of the subjects included in social studies at the graduate level and to make up the deficiency in the remaining subject areas additional teaching modules may be organised during the training period. Further enrichment programmes will follow as a part of in-service training.

7.65. For the professional preparation of supporting staff in educational technology the entry qualifications will be Master's Degree in any of the subjects to be taught in a School/College in the academic stream. Their training will be for one year's duration and on the line of courses given below:

Supporting
staff in
Educational
Technology.

—The course outlines need to be specifically related to the professional requirement of teachers in actual class-room situations.

—The programme is essentially task oriented.

—The syllabi need to be woven around the following courses :

(i) The study of current practices in the main decision area ;

- (ii) The principles and practices of course design ;
- (iii) Implementation and development of courses with-
in the institutional contexts ;
- (iv) Analysis and description of teaching and learning;
- (v) Development of software and use of hardware
educational technology for correspondence
education.

—The trainees will be required to derive and identify aims of education, specify objectives, select and structure content, identify teaching and learning strategies, identify and analyse modes of use and impact on learning outcomes of the main education media and explore the effects of all other decision fields across the system of change in any one of them; and the problem of maintaining consonance.

—The trainee will be required to be so engaged in problem — solving activities that he is active all through the period of training. If the trainees are introduced to the use of educational technology in correspondence education, it would perhaps serve the purpose more appropriately, especially when rigid boundaries between formal and non-formal education are gradually disappearing.

Punjab University, Chandigarh, runs a two semester course for Post-Graduate Diploma in Educational Technology on the lines suggested above.

7.66. The trainees on this course after successful completion can also be suitably employed for teaching at the Plus 2 stage of the academic stream besides being usefully employed for popularising the use of educational technology in schools and colleges, and can act as resource persons in the school based programme or in the school complex based programmes.

7.67. Likewise, the professional education of teachers ^{Teachers for} required for the teaching of vocational courses at the Plus two ^{vocational} stage, as also for polytechnics, will be closely matched with ^{stream} the Bachelor of Education (Tech.) courses proposed by the TTTI, Chandigarh. The courses of study include papers on Developmental Psychology, Psychology of Learning, Educational Technology, Communication, Measurements and Evaluation, Professional Studies, Subject Development, Industrial Training and Student Teaching. The courses have been designed and the strategies of training so planned that the trainees on this course could develop subject matter competencies, ability to teach, ability to grasp the entire process of curriculum planning and to develop right professional attitudes, and ability to deal with pupils, schools and superiors effectively. This programme is worth accepting for implementation. ^{education.}

Guidance and
counselling.

7.68. We have emphasised elsewhere in this report the role of counselling in helping to provide strategies to improve educational standards. Qualified counsellors will be required for the State Guidance Bureau and at district headquarters with the District Education Officer, and in the proposed school complexes.

7.69. The training programme for this cadre of workers, who will be supporting and supplementing staff to the existing cadres in the education system, is also to be run at the proposed Institute of Educational Studies and Development. Universities, no doubt, would follow suite in due course. Panjab University, Chandigarh, already runs a course on Guidance and Counselling.

Higher
degrees in
education.

7.70. There has been considerable debate as to whether education is a task-oriented programme or a discipline. In the modern world there are hardly any rigid boundaries isolating the subject matter of one area of human activity from another. We hear of inter-disciplinarity multi-disciplinarity and pluri-disciplinarity, which only mean to suggest that the problems of exploration in the field of knowledge cannot be adequately tackled by employing the single discipline approach, background knowledge of only one subject or the methodology involved therein. We are placed in a time when the complexity of knowledge is growing day by day and there is a need of extending the frontiers of knowledge by using multiple strategies.

7.71. Education can be taken both in terms of a carefully planned task oriented activity and in terms of a discipline. It is task oriented in the sense that its applications are widely used by the practitioner teachers for improving the quality of teaching and learning. For several decades education was being taken as it is, and, consequently, the conventional courses like B.T./B.Ed./M.Ed. have been in vogue. We should not lose sight of the fact that no practice can be effective without a sound theory supporting it. In order to make education effectively a task oriented activity/programme it is of the utmost importance to raise the theoretical inputs underlying educational problems, which suggest a greater need for a theoretical orientations of educational studies. For this reason the two streams of courses — one leading to professional preparation and the other to liberal education — were recommended by the Education Commission earlier. We agree with this recommendation, and suggest that, besides the professional courses in education, liberal courses also need to be strengthened at University Departments of Education. In several States of India, Education as a subject has been introduced after Class X, and it continues as a subject and as an area of study at the collegiate level. It has somehow not been followed vigorously in Punjab, but in future we hope that more colleges will come forward to throw this option open to the students and cater for its teaching.

7.72. Till recently a dissertation was compulsory for all those pursuing the M.Ed. programme, but now it is left as an optional subject by the Panjab University. For the M.A. Examination the Panjab University has made research compulsory for all the students in their own areas of major concentration (specialisation). In the Punjabi University, Patiala, a research project is undertaken as a part of research methodology by the candidates pursuing M.A. in Education. Obviously, the research at this level cannot be accepted to have gained high standards of quality, and the findings may not be accepted as valid for their application. Nevertheless, its inclusion in the course of study acts as a training ground for more serious research work in life. M.Phil. research is in partial fulfilment of the degree requirements, and has decidedly higher standards. In many cases the research work taken up for M.Phil. can be extended for Ph.D. Most research work in education does not seem to be thematic, it is fragmentary and, in cases, lacks the use of precision of thought and technique. In order that research should become central to all planning in educational institutions it will be worth while to research the problems hampering the progress of education or interfering with the process. We do not mean to undermine the scope of fundamental research in education, which is decidedly necessary for theory building, but we must say at the same time, that to solve current educational problems, applied research including action research is equally important.

7.73. The Research Centres in the university departments of education must act as a nucleus around which the various policies in the field of education are formulated, innovations adopted, and new schemes executed. The research function of a University Department of Education must not merely be restricted to the University, but it has to flow to other target groups such as schools, colleges, administration and the like.

SUMMARY OF

CHAPTER VIII : TEACHER EDUCATION

1. To conceive of any reform in education, without simultaneously thinking of improving the quality of teachers, would simply amount to a feeble conception both theoretically and practically. Through a carefully planned teacher education programme, and by altering the academic environment in which it is imparted, followed by well thought out in-service education for continuously up-dating their knowledge relevant to modern educational developments, we can create a potential among teachers to fill their future role.

(7.01-7.02)

Major issues

2. The training programmes, as at present structured, do not bear any relevance to teaching and learning situations in the schools. A sense of professionalism is often lacking among teachers and no attempts are being made to arouse it. The institutions imparting teacher education have superficial links with the main stream of education whether in schools or in universities.

(7.03—7.05)

3. At places, practising schools are not available. Practice teaching is taken casually, and there is no objectivity in its evaluation.

(7.06)

4. There exist ambiguities in the training of teachers in languages and social studies. In-service training of teachers which should have constituted a continuum with pre-service training, is not satisfactory, and attempts made in this respect are random, by and large.

(7.07—7.10)

Teacher education focus.

5. The professional preparation of teachers has to match the demands of our emerging educational expectations. The dominant thrust areas of education during the closing years of the present century would be: pre-primary education as a support activity for improving the quality of education; non-formal system of education; educational technology and guidance and counselling as support systems to the traditional formal system of education; value-oriented education to strike a balance between the concomitance of advances in science and technology and humanistic values; vocationalisation of education; and adult and continuing education.

(7.11-7.12)

Objectives.

6. In keeping with the futuristic trends in education the broad objectives of teacher education, if hierarchical

differentiations among teachers are ignored, would be (a) to sensitize the teacher to the emerging trends in the development of Indian society and its orientation; (b) sensitizing him to Indian Values and the process of valuing; (c) enabling him to acquire an understanding of the pupil and his environment, (d) equipping him with competencies to design and implement instructional programmes; (e) enabling him to acquire skills of action research; and (f) developing in him competencies to link educational activities with the world of work as also creating in him an urge for continuing professional education.

(7.13-7.14)

7. In the light of these objectives three categories of training programme, namely (a) Basic Courses; (b) Special Training Programme Packages (STPP); and (c) Student Teaching are relevant. Basic courses will include (a) Teacher and Education in the Emerging Indian Society, (b) Psychology of Instruction (models of teaching and learning), (c) Instructional Courses related to identification of objectives, task analysis, teaching-learning strategies and evaluation; (d) Value Education and (e) Working with Community and Work Experience. The curriculum needs to be designed in such a way that an integration be achieved among theory courses and values are woven with skill dominated and attitude building areas. STPP will need to be designed according to the level of training in which a sufficiently sound theoretical base has already been developed either in general education or through the basic courses. It will cut across both the theory and practice, with possibilities of developing multi-media packages on different areas of content of the training programme for facilitating clarity of communication and reinforcement of the learning experiences.

(7.15—7.17)

8. Student Teaching will become a continuous process with STPP. The training of primary school teachers will follow the content-cum-methodology approach and will have to be imparted in a variety of ways—micro-teaching setting, simulated situations, multiple class teaching, multiple subject polytalent teaching and non-formal situations. Student teaching needs to be designed as a blend of various models, such as information processing, personal behaviour, classroom interaction and social interaction.

All institutions of education must have their own practising schools. Educational technology also needs to be introduced and made use of during training.

(7.18-7.19)

9. The Content-cum-methodology approach to be followed for the preparation of secondary teachers would be equally effective, as with primary teachers. For practice teaching there should be one major area of concentration in

which intensive practice teaching be given, and the second subject be included as the minor area of concentration as against the existing practice of giving equal weightage to both the subjects.

(7.20)

Evaluation.

10. The integration of basic courses, STPP and student teaching would largely favour the adoption of modular courses, built-in internal assessment for STPP and external as well as internal evaluation for basic courses and skill in teaching. Continuous assessment will need to be taken as a matter of policy for assessing student performance periodically, thereby obtaining feed-back for improving teaching-learning. In terms of weightage 40 per cent be assigned to theory, 20 per cent to STPP and 40 per cent to practice teaching.

(7.21—7.24)

Autonomous
Institute of
Educational
Studies and
development.

11. To break away from conventions takes time. For speedy changes, therefore, an autonomous Institute of Educational Studies and Development be set up in the State in order to make it possible to revamp teacher education, modernise courses of study, bring pre-service and in-service training on the same continuum, and introduce innovative practices and pace setting courses.

(7.25-7.26)

12. The universities will perform their function of teaching and research for developing a sound theoretical base of education, while the proposed Institute of Educational Studies and Development will take care of the functional and professional aspect of teaching and learning in actual classroom and non-formal situations.

(7.27)

Pre-service
teacher
training.

13. The pace setting courses like B.Ed. (Primary), B.Ed. (Secondary) B.Ed. (Science Education), B.Ed. (Commerce), B.Ed. (Agriculture) etc. followed by M.Ed. courses in each of these specialities need to be introduced at the Institute. A four year integrated course in Education, after 12 years of academic preparation, is worth giving a fresh trial, which task can be entrusted to the Institute.

(7.28)

In-service
training.
teacher

14. Those who impart training to primary teachers must have necessary inputs of knowledge at that level i.e. B.Ed., M.Ed. (Primary Education). The supervisory staff, too needs to be drawn from such trained personnel as have been cultured in this fashion.

(7.29)

15. The proposed Institute will function as the main centre for developing materials for the in-service education of teachers in collaboration with the Directorates of Education

and SCERT. In-service education will be the direct responsibility of the Institute in addition to the various courses and programmes that it would organise.

(7.30)

16. The organisational structure of the proposed Institute would include the following departments :— ^{Structure.}

- (a) Languages;
- (b) Mathematics;
- (c) Science;
- (d) Social Sciences;
- (e) Teacher Education;
- (f) In-service Training;
- (g) Guidance and Counselling and Evaluation;
- (h) Adult Education, Non-formal Education and Continuing Education; and
- (i) Educational Technology.

(7.31)

17. This will be a pioneering Institute in India like the IIT's and All India Medical Institute of Education and Research which will give new orientations to teachers education different from what could have been possible from conventional institutions.

(7.32)

18. An Educational Technology Centre (Department) should be established in the Institute of Educational Studies and Development. This Centre will build a library of software, produce software, act as a feeder of the ET material, monitor the feed-back on the material produced and utilised by different target groups and make use of the same for its further refinement. ^{Department of Educational Technology.}

(7.38)

19. Besides this centre the Staff Development Centres at district headquarters and learning resources centres in secondary and senior secondary schools will need to be established forming a support sub-system. These centres will cater to the needs of the feeder schools which will serve as an instructional material bank having both print and non-print modules. ^{Staff Development Centres.}

(7.40)

20. The District Staff Development Centre will undertake the responsibility to organise in-service training of teachers on a continuous basis with adequate follow-up.

(7.45)

21. The development of the ET network at different levels would cost a substantial amount, for which central assistance is available under a 100 per cent financed scheme for ^{Costs of ET Development.}

setting up a sound recording studio and a TV studio. The resources of NCERT, which provides a scheme of Centres for Continuing Education of Teachers on a 50 : 50 grant basis can be utilised for establishing the district and learning Resource Centres. Besides, voluntary agencies can be approached for raising funds. If Central Government resources and the resources from voluntary agencies are mobilised and pooled together, it would be practicable to implement the scheme of in-service training by utilising educational technology.

(7.47—7.50)

22. The programmes of in-service training need a follow-up which can be organised by the unit providing in-service teacher education in the Institute of Educational Studies and Development. The department of in-service training and educational technology can be involved in providing the proposed inputs which will include the development of programmes, orientation of resource persons and establishment of linkages with District and Learning Resource Centres which could eventually be established in all Complex level Centres.

(7.52-7.53)

23. To motivate teachers for undertaking in-service teacher education regularly both monetary and non-monetary incentives will have to be offered.

(7.54)

24. A built-in system of research and development is equally essential in the field of in-service teacher education, as it is for pre-service education.

(7.55)

25. The formation of Subject Teachers' Associations be encouraged and their functions re-directed for discussing matters related to the teaching of specific subjects. Through such associations a sense of belonging to the subject area, and hence that of professionalism, can be developed. They can also bring out educational journals, which task, however may have to be undertaken by the Institute in the initial stages.

(7.56-7.57)

Admissions
basic qualifi-
cations.

26. The educational system of the twenty-first century would require teachers without any hierarchical differentiation up to the matriculation level. We strongly advocate it. However, till such time these differentiations are dispensed with Senior Secondary Certificate (Plus 2 stage) be taken as the minimum academic preparation for entry into the J.B.T. Course consisting of two years training following the content-cum-methodology approach. Alternatively, after ten years of schooling the trainees for JBT can be taken into a four year integrated teacher education programme, of which two years can be in the vocational stream at the plus 2 stage.

(7.58—7.61)

27. The main qualifications for entry into B.Ed. must be raised to 15 years of academic preparation, i.e. the first academic degree in the 10+2+3 system followed by one year of training in a college of education. All categories of teachers must have this background irrespective of the subject they teach.

(7.62)

28. For recruiting teachers for the teaching of English at the high school stage English as a full-fledged compulsory subject at the first degree level must have been offered by them.

(7.63)

29. Social Studies Masters, too, must have offered one of the subjects constituting a broad field of Social Studies, at the graduate level and be required to make up the deficiency in the remaining subject areas by taking additional teaching modules to be organised during the pre-service training programme, as also afterwards.

(7.64)

30. For the professional preparation of supporting staff in educational technology the entry qualification will be a Master's Degree in any of the subject to be taught in a school/college in the academic stream. Their training will be of one year's duration in educational technology. The trainees, after successful completion, can also be suitably employed for teaching at the plus 2 stage of the academic stream.

(7.65-7.66)

31. The professional education of teachers required for the teaching of vocational courses at the Plus 2 stage will be closely matched with the Bachelor of Education (Technical Course) proposed by the TTTI, Chandigarh.

(7.67)

32. The training programme in guidance and counselling will need to be organised on a continuous basis.

(7.68)

33. The degrees in education may be both liberal and professional. The University Departments of Education must develop a strong base for liberal courses in education. The colleges in Punjab should come forward to throw open the option of education to the students and cater for its teaching.

(7.70-7.71)

34. A research dissertation should be made compulsory at the Master's level, for it acts as a training ground for more serious research work in life. The research function of the departments of education in the universities must not merely be restricted to earning university degrees. It needs to flow into schools/colleges, administration and the like. This can happen only, if it is not focussed exclusively on fundamental research of theoretical nature, but is also directed to the solution of current educational problems of practical utility.

(7.72-7.73)

CHAPTER VIII

EXAMINATIONS

8.01. Examinations are an integral part of the total educational process, particularly because they have linkages both with teaching and learning. The teaching-learning process and the examinations constitute a unity of functions, and, as such, the examination system that is followed, will have implications for the effectiveness of teaching as well as the quality of learning. A change in either of these involves a corresponding response in the other.

8.02. The examination component of the total education process has two objectives before it:—

—One is to serve as a feed back mechanism, with regard to the effectiveness of the teaching-learning process both from the point of view of the teachers and the students to enable them to take corrective measures; and

—the other is to grade or classify the students at the end of a predetermined period (in our case annually) with a view to assessing if they have gained adequate proficiency to be promoted to take advantage of the next higher level in the educational process.

8.03. Unfortunately, in our situation we are mostly concerned with the second objective and hardly use examinations as a feed back mechanism for the teaching and learning process.

National
Perspective.

8.04. There has been wide spread interest in the question or reform of our examination system over the years. It is generally recognised that there are serious deficiencies in the present system, and it has become incumbent to make the process of testing the students relevant to the study undertaken by them so as to make this process as accurate as possible. At present, this assessment is done on the basis of evaluating the performance of the students in a public examination held annually. Broadly speaking, the students are grouped as those who 'pass' and those who 'fail'. The failure rate generally ranges between 50 and 60 per cent according to the statistics available. The former category is further sub-grouped into those who secure the first, second and third divisions, with the last category preponderating. It has been stressed time and again that the examination system, as it has been operating, does not really project the true merit, ability and talent of

the students. The positions that the students secure in the examinations are not the true index of the knowledge acquired by them in the pursuit of their studies.

8.05. Successive Commissions and Committees have pointed out the weaknesses inherent in our present examination system, and suggested various measures of reform. Dealing with the chronic nature and magnitude of the problem of examination, the University Education Commission (1948) in its report stated that the deficiencies and harmful consequences of this evil have been analysed and set out at various times but nothing constructive has been done in the way of reform. It stated:—

University
Education
Commission
(1948).

“We are convinced that if we are to suggest one single reform in University Education, it should be that of the examinations. We advisedly say reform although we know that in India, as elsewhere in the world, dissatisfaction with examinations has been so keen that eminent educationists and important educational organisations have been advocating the abolition of examinations. We do not share that extreme view and feel that examinations rightly designed and intelligently used can be a useful factor in the educational process. If examinations are necessary, a thorough reform of these is still more necessary.”

8.06. We fully share this view of the commission. Under the present circumstances if abolition of examinations from our educational system is not conceivable, we must reform the system of our examination to enable it to play its designed role in the educational process as efficiently as possible. It is to this and that we must direct our total attention.

8.07. The commission in particular, singled out the following deficiencies in the system of examination:—

—Since examinations are organically related to the actual process of education, tests and question papers should be designed generally with educational ends in view;

The essay type of examination suffers from such major defects as lack of clearly defined objectives, arbitrary sampling of content areas for setting question papers and subjective scoring;

—As no grading is given for class work, students do not engage themselves in regular studies;

—Students experience considerable mental strain under the present system, under which, a final

examination is held at the end of the academic session, on the result of which the future of the student depends;

—It can lead to use of unfair means to clear examinations;

—The standards for success in examination differ in different universities.

UGC survey.

8.08. In 1962 the University Grants Commission elicited information from various educational institutions in our country, and a study of the data made available revealed that there is a great diversity among these institutions in the:—

—nature of examinations;

—the scope and application of internal assessment;

—the nature of question papers;

—the marking of examination scripts; and

—the classification of examination results and research in examination.

8.09. The study brought the obvious shortcomings to the surface again. It stated that the essay type questions dominate the present system of examinations in India and though an oral test or a viva voce forms part of the examination in the practical tests etc., the scope of continuous internal assessment as a part of the teaching process in the educational institutions is only limited and meagre. Very little value is attached to this and it varies from one educational institution to another. The report under reference drew pointed attention to the high rate of failure especially in the university examinations and also to the insistence on separate pass marks in a series of subjects. Another factor that contributes to this depressing phenomenon is the inefficient teaching, lack of feedback and inadequate facilities in many of the institutions of education.

Education
Commission
(1964-66).

8.10. The persistence of deficiencies in our system of examination was again stressed by the Education Commission (1964-66). The commission highlighted the magnitude of this perennial problem and the glaring lack of any concrete steps taken to tackle it. The commission observed:—

“In the present system, when the future of the students is totally decided by one external examination at the end of the year, they pay minimum attention to the teachers, do little independent study throughout most of the academic year, and cram desperately for the final examination. The

crippling effect of external examinations on the quality of work in higher education is so great that examination reform has become crucial to all progress and has to go hand in hand with improvements in teaching."

An Expert Committee of the University Grants Commission had identified the main drawbacks of the examination system, and made some useful suggestions for reforming it. But no appreciable attempt has been made in this direction. The commission, therefore, was perhaps impelled to state:—

"This is one of those areas in education about which one can say that the problem is known, its significance is realised, the broad lines of the solution—at least to begin with—are known but for some reason—at least to an effort to implement it on any worth while scale or in a meaningful manner has not get been made. What is needed is vigorous and sustained action."

8.11. The commission was of the view that one line of attack would be to abolish set syllabi and external examinations based on them altogether, and to replace them by a system of internal and continuous evaluation of the students by the teachers teaching them. This is already being done in some institutions like the I.T.I.'s, All India Institute of Medical Education and Agricultural Universities etc. and it could be increasingly extended to others as soon as the necessary facilities and conditions can be provided.

8.12. The commission, however, felt that as external examinations will still remain with us for a long time especially in universities, which have large numbers of affiliated colleges of very unequal standards, the main strategy could be to attack the problem on three fronts:—

- firstly, introduction of more frequent periodical tests to reduce undue emphasis on the final examination as the sole determinant for success;
- secondly, reform of the evaluation techniques; and
- finally introduction of a system of internal assessment as a supplement to the external examination, based on periodical evaluation. The results of these internal assessments may not be mechanically added to the external marks, but kept separate and both to be shown side by side in the final certificate."

8.13. We are in complete agreement with these suggestions, and would like the universities and schools to give them a practical shape. In our opinion this is something basic to the reform in the examination system, and the earlier steps are taken to give effect to it, the better will it be for the entire system of education.

It also suggested the following measures, with which we agree:—

- There is need for a central source to guide and activate a movement of examination reform, without which no early and effective progress is possible.
- The need to persuade some universities to launch upon the programme in a big way.
- The need for the reorientation of teachers to adopt new and improved techniques of evaluation.

8.14. With regard to the grading and classification of examination results, the commission observed that at present, it is done on an absolute, rather than on a relative, basis. It suggested that the system of grading must be such as to bring out whether a student belongs, say, to the top 20 per cent of his class or to the bottom 20 per cent. It stated that even if the present system of examination and classifying the results is continued it should be supplemented by giving in the same certificate the relative grading of the students, say, on a five point scale. We completely support this suggestion.

Examination
Reform-A
Plan of
Action 1981.

8.15. In 1981 the University Grants Commission brought out a monograph 'Examination Reform—A Plan of Action'. It reiterated what a number of Committee and Commissions, which had deliberated on the examination system at various educational levels, were in general agreement with, namely:—

- (a) Examinations have come to dominate the educational process, and passing them is considered more important than acquiring any education;
- (b) External examinations, in particular, encourage selective study and cramming, because they are more likely to have a set of stereotyped and general questions;
- (c) The marking of the scripts even at the best public examination is hurried and superficial. The marks obtained in examinations are not a reliable measure of a student's performance (leave aside achievement); the combination of raw marks lacks validity.
- (d) There is an increasing use of 'Unfair' practice leading to complex administrative problems including danger to life and limb of the invigilators.
- (e) The crippling effect of external examinations on the quality of work in higher education is sc

great that examination reform has become crucial to all progress; and has to go hand in hand with the improvements in teaching.”

(Report of the Education Commission rightly 66-Page 290).

8.16. The University Grants Commission rightly suggested that the most sound educational procedure would be to allow teachers of various courses to evaluate the performance of their students in accordance with the objectives they had set before themselves, so that instruction may be improved in the light of the evaluation. This is a basic examination reform and we strongly support it.

It was pointed out that in spite of the large area of agreement and the urgent need of examination reforms, much headway had not been made on account of the following:—

- (i) A large body of teachers and administrators is not fully conscious of the subjectivity, unreliability and lack of validity of the examinations. An alternative system has not been clearly spelled out as yet;
- (ii) There are vested interests which create certain impediments in the way of reforms;
- (iii) The various agencies responsible for bringing about examination reforms have shown considerable lack of will in using their authority to make the change;
- (iv) The reason for the lack of initiative in bringing about and the tendency towards postponing examination reform is the fear that if any university were to give up external examination, its degree would be devalued.

It was amplified that the desirable pattern of examination must be based on the following general principles:—

- (i) Those who teach should also examine. In this sense examinations must become internal and an integral part of the teaching process. The sessional and continuous assessment of performance must be shown on the grade-sheets separately.
- (ii) If the award of a degree or a diploma depends upon the performance of a student in a number of courses, these courses should be delinked, so that if a student has failed to make a grade in a particular case, he may not be penalised in other courses due to this failure.

- (iii) The performance of students must be assessed over well distributed intervals of time so that a course which is completed in a year or a semester, must come up for examination at the end of the year or the semester without having to wait for the final examination.

Since the standards of judgement for various subjects are also different, students must be awarded grades and not marks at the examinations and assessment.

- (iv) The institutions preparing students for certain degrees should hold examinations/assessment as an internal part of their teaching programme.

8.17. It was also recommended that a national Examination in various subjects at the Bachelor's level must be conducted by a central authority on a purely voluntary basis. This examination could be designed to test creative thinking and comprehension of the subject matter so as to serve as a national index of performance and achievement of the students of various institutions. This recommendation has many implications and difficulties. We are of the view that it may not be opportune to implement it at this stage.

**Present
status of
examinations
in Punjab.**

8.18. From a perusal of the preceding pages, it would be apparent that notwithstanding unambiguous formulations to remove the glaring shortcomings of the examination system, the goal to be achieved still remains dim and distant. This is one of the principal reason responsible for the quality of teaching and learning remaining static and stagnant in the State.

8.19. The system of examination in Punjab is more or less the same as elsewhere in the country, and has an identical effect on the total educational process. Annual examinations are used as a means for promoting students from one class to another.

8.20. Except for examinations at the end of each stage of the 11 years' school cycle i.e., at the end of primary, elementary and secondary stages, the schools conduct their own annual examinations, and after assessing the performance of the students, promote them to the next higher class. Generally, the annual examination is preceded by the quarterly tests given to each of these classes. But these tests do not serve any useful purpose, for they are neither used for providing a 'feed back' to the teachers in effecting improvements in teaching, nor are they included in the overall assessment of the students at the end of the year.

**Examination
by an
External
Authority.**

8.21. The Punjab School Education Board conducts examinations at the end of Primary, Middle and High/Higher Secondary stages of the 11 years' school cycle prevalent today.

These examinations are conducted by the board as external examinations on the syllabus prescribed by them.

8.22. As already pointed out, except for the examination at the end of the primary stage, all examinations are conducted by the School Board including evaluation of script and declaration of results. In the case of the Primary School Examination while the question papers are set by the board on their prescribed syllabus, the rest of the examination is conducted by the Block Primary Education Officer to whom the papers are sent through the District Education Officer concerned.

8.23. This dyarchical arrangement is educationally unsound. We have no hesitation in recommending that the earlier this anomaly is ended, the better for the system of elementary education in the state.

8.24. The scheme of examination prevailing at the primary stage is indicated below :—

TABLE 3.1 : Examination Scheme at the Primary stage

Sr. No.	Subject		Maximum Marks	Pass percentage	Pass percentage for private candidates
1.	Mathematic				
	Written Assessment	40 } 10 }	50	20	25
2.	First Language				
	Written Assessment	40 } 10 }	50	25	30
3.	Second Language				
	Written Assessment	15 } 5 }	20	20	25
4.	General Science				
	Written Assessment	30 } 10 }	40	20	25
5.	Social Studies				
	Written Assessment	30 } 10 }	40	20	25
Total			200	21	26

Source : Punjab School Education Board, Mohali.

8.25. It is apparent that in the courses prescribed the overall weightage given to the language and mathematics is more as compared to other subjects like general science and social studies. The weightage for all curricular subjects should

be equal. Further, the marks provided for internal assessment and the minimum required for passing the examination are, more or less, equal, which means that even if a student does very poorly in the written examination, he could still clear the subject on the basis of marks secured in internal assessment, in the award of which a good deal of liberality is often noticed. The marks in internal assessment are not awarded on the basis of 'home assignments' periodical tests etc. and no records of such exercises, if any, are maintained at all. These could, therefore, be manipulated to help the students in making up their deficiencies so as to secure a 'pass' in the examination, which is educationally most disturbing.

8.27. The Education Reforms Commission carried out a survey to study the trends of results in examinations. The data were obtained from four districts of the state, and are given in the following table:—

TABLE 8.2 : District wise pass percentage at Primary level

District	1976-77	1979-80	1982-83
Kapurthala	75.8	93.0	97.0
Bhatinda	73.7	93.5	97.2
Ropar	85.9	97.0	99.8
Patiala	70.7	89.8	95.1

8.28. The sudden spurt in the pass percentage in 1979-80 and 1982-83 as compared to that obtained in 1976-77, is perhaps indicative of a conscious effort on the part of the persons evaluating the answer-books of the class V examinations to promote the maximum number of students. This is in no way indicative of any appreciable improvement in the standard of the education imparted and the higher level of skills acquired by the students.

8.29. As stated in the foregoing paragraph, there is an urgent need to remedy the present unsatisfactory arrangement of having two separate agencies responsible for handling one integrated process. It leads to many distortions and malpractices, eroding the credibility of this examination altogether.

8.30. The ideal situation, without any doubt, would be to entrust the work in connection with the examination and evaluation of the pupils' performance to those who teach them. On that basis it is possible to argue that the two public examinations i.e. at the end of the Primary and elementary stages could be eliminated. For purposes of promotion to the higher class continuous internal assessment of the work done by the students throughout the year could form a

sound and reliable basis to evaluate the attainments of the pupils. But because of the prevailing wide spread distrust of what goes by the name of internal assessment and evaluation, it would appear to us that checks and balances would be necessary at different stages of the system, at least for some time to come, so as to ensure the successful performance of the educational process.

8.31. It is essential, therefore, to continue to hold an external examination for the class V students at the end of the primary stage. However, with a view to moving in the direction indicated above, we feel that this examination could be held within the school complex without involving the School Board. The teachers teaching classes senior to the fifth class may be entrusted with the responsibility of undertaking the work of this examination in all its aspects.

8.32. On the other hand, we are of the considered view that the class VIII examination should continue to be a public examination, as at present, firstly because it marks the terminal stage of the free and compulsory elementary education, which the state provides in fulfilment of the constitutional obligation. Secondly, such an examination is deemed necessary for the purpose of adequate certification by a competent authority, as many pupils do not, and cannot for various reasons, go beyond this stage of education.

8.33. At this stage, perhaps, we should look at the examination scheme prevalent in the Punjab for the other two public examinations advocated by us to be entrusted to the School Board i.e. the class VIII and the Class X examinations. The scheme of examinations is as given on page.

Middle and
High School
Examinations.

TABLE 8.3 : Examination Scheme at the Middle Stage

Serial No.	Subject	Maximum Marks	Pass Percentage	
1	English	100	25	
2	First Language	100	33	
3	Second Language	107	33	
4	Mathematics	100	25	
5	Sciences— Theory Practical	{ 75 } { 25 }	100	25
6	Social Studies	100	25	
7	Health and Physical Education— Theory Practical	{ 40 } { 60 }	100	33
8	Elective Subjects	100	33	

Source : Punjab School Education Board, Mohali.

TABLE 8.4 : Examination Scheme at the Matriculation level

Serial No.	Subject	External Assessment	Internal Assessment	Total	Pass Percentage
1	Punjabi	180	20	200	33
2	Hindi	135	15	150	33
3	English	135	15	150	33
4	Mathematics	135	15	150	33
5	Social Studies	135	15	150	33
6	Science— Theory Practical	100 35	15	150	33
7	Heath and Physical Education— Theory Practical	40 50	10	100	33
8	Elective Subject (One)	135	15	150	33

Source : Punjab School Education Board, Mohali.

A perusal of the prescribed courses of study at these two levels shows that the subjects offered are the same. The conduct of examination and the procedure for evaluation etc. are, more or less, similar. Both the Middle School and the High School examinations are public examinations, and are held by the Punjab School Education Board in accordance with the structured and prescribed courses laid down for these different classes by the board. In view of these and other similar reasons we thought that the pattern and system of these examinations could well be considered together.

8.34. It is apparent that both at the level of the Middle School examination and the matriculation examination there is a clear 'maldistribution' of weightage for different subject areas. In the Middle School Examination 300 marks are assigned to the three languages, and each of the other subjects allocated 100 marks. Thus 37½ per cent marks are earmarked for languages and only 12½ per cent for each of the other subjects. But the more serious flaw in this scheme of examination is that for the major and vital subjects like English, Mathematics, Science and Social Studies the minimum pass marks required are 25 per cent, while in the other subjects the minimum marks required for passing the examination are 33 per cent. The reason stated for this differential was the high percentage of failures in these subjects. It was, therefore, decided that the minimum pass percentage in these subjects be reduced to 25. This reason does not appear to us to be academically justifiable. Instead of taking adequate steps to improve instructional standards in the schools, a simple and

easy remedy to rectify the situation arising out of the high degree of failure rate was sought to be found in lowering the minimum pass percentage. We have not been able to reconcile ourselves to this decision, and recommend that not only should equal weightage be provided to the various subjects of the curriculum but the minimum pass percentage for all subject areas should also be uniform.

8.35. Yet another lacuna in this examination scheme is the total lack of any provision for internal assessment. This is an inexplicable lapse, and we are of the considered view that continuous internal assessment based on home work assignments and regular tests should be a part of the instructional programme, with marks allocated for the purpose in each subject. It should be ensured that both the teachers and the students put in regular work, and a proper record is maintained of the evaluation etc. The advantages of getting the 'feed back' are quite obvious.

8.36. Similarly, at the High School stage we come across the same lop-sided distribution of marks among the various subjects — 500 marks for languages and 150 or 100 marks for each of the other subjects. It is very surprising that in a society where the major emphasis now is on scientific and technological change of considerable dimensions, the importance of subjects like science and mathematics is not fully emphasised and appreciated by those who are entrusted with the task of formulating academic programmes and policies.

8.37. At this stage, also the weightage given to languages is about 42 per cent and the other five subjects have the total weightage of about 50 per cent, equally divided within these areas of study. Further, the division of weightage among the three languages is not equal. It is 17 per cent for the first language and $12\frac{1}{2}$ per cent for the second and the third language, which appears to be lop-sided at this stage. There is a very urgent need for bringing about rationality in the whole scheme of high/higher secondary education. It would be desirable to do so by keeping in view the contact time allocated to different subjects.

8.38. We have elsewhere suggested to make work experience and allied activities an integral part of the curriculum. This area of study must also be given due weightage in the scheme of examination. In the present scheme more emphasis has been laid on written papers, and less consideration has been shown to practical work. This also should be rationalised so that practical work may get its due recognition.

8.39. It will also be seen that the weightage given to internal assessment at the matriculation level is very meagre. It is barely 10 per cent in each subject. No norms and guidelines whatsoever have been formulated or developed for the purpose. Each school treads its own path in this matter.

We have separately recommended that this should be increased by stages first to 25 per cent and ultimately to 50 per cent over a period of time. The records etc. of the assignments given, if any, and the credits awarded are not maintained. It may be said that the responsibility for the wide credibility gap which has come to stigmatise our school education to a considerable extent, is, candidly speaking, that of the teachers and others who provide direction to the system of education.

8.40. If the pass percentage in the Primary School examination is approximating the peak of almost 100 per cent passes, a somewhat similar trend is perceptible in the Middle and High School examination results as well. The two tables given below provide an ample testimony to indicate it :—

TABLE 8.5 : Examination Results at Middle stage

1978	1979	1980	1981	1982	1983
76.29%	81.97%	60.56%	69.43%	69.98%	73.34%

Source : Punjab School Education Board, Mohali.

TABLE 8.6 : Examination Results at Matriculation level

1979	1980	1981	1982	1983
67.44%	60.51%	61.57%	66.29%	74.55%

Source : Punjab School Education Board, Mohali.

8.41. The observations made in the foregoing pages are based on the study and analysis by the commission of the data concerning the results of the various public examinations conducted by the School Board for the last few years. The examination scheme at each level suffers from many weightage and curricular deficiencies. We recommend early attention to be paid to them to set right these distortions and to vitalise the educational process.

8.42. We would like to highlight the following distortions that need immediate attention :

- There is a considerable rise in the pass percentage in the examination results because of non-academic factors which have been referred to in the relevant paragraphs. This needs to be investigated.
- The mechanical addition of inflated marks obtained in internal assessment to the external evaluation, is partly responsible for the above phenomenon. This needs to be curbed by adopting various strategies.

- The marks obtained by the students in the languages (except English) are very high and those obtained in such important subjects as Science, work experience and allied subjects are quite low;
- The languages and Mathematics are compulsory subjects, whereas science and other subjects are relegated to the secondary position;
- In the schools greater emphasis is laid on the teaching of compulsory subjects, and comparatively lesser importance is given to the teaching of other subjects. All curricular subjects of the core programme should have the same status.
- Lowering the pass percentage to 25 per cent in the case of some subjects at the level of the Middle Examination with a view to ensuring a higher pass percentage is something that can in no way be justified.
- There is a lot that is required to be done to improve the teaching-learning strategies in the study of those subjects wherein the failure rate has been higher.

8.43. We realise that external examinations will continue to remain with our system for quite some time. The system of internal assessment of the students as an alternative for the evaluation of their performance may not be acceptable or even feasible at this stage. However, we feel that it would be desirable to introduce continuous intrnal assessment as a supplement to the external examination both in internal examinations conducted by the schools as well as the external examinations conducted by the board. By doing so we shall at least ensure that the teachers who teach will get an opportunity to evaluate the performance of their students themselves and use it as a 'feed back' mchanism for improving their instructional programmes, and both the students and teachers will work regularly throughout the year.

8.44. As already pointed out earlier in this chapter, there are two functions of an examinations in the educational process, namely, classification of the pupils and as a feed back mechanism for measures to be taken to improve the educational process. Even in our internal examinations in the schools while we do conduct quarterly examinations and give some home assignments, these are totally ignored in the final evaluation and no notice is taken of them for any corrective measures. Similarly, in the external examinations, while some provisions exists for internal assessment, firstly it is too meagre to be effective, and secondly, it is not correctly organised but is manipulated to encourage mal-functioning of the system.

8.45. We have considered this matter very carefully. It is more than obvious to us that in the scheme of things obtaining examinations are only being used to secure the first of

these objectives, namely, classification of the pupils for promotion. We are not even aware of the use of examinations as a mechanism for improving the educational process, which, in our view, is far more important in order to establish strong linkages between the teaching and the learning process. We are convinced that the potential of this component of the examination process should be fully utilised to bring about the desired improvement in the standards and quality of education. There is no escape from it, and the sooner it is accepted, the better for the educational system.

8.46. We, therefore, strongly recommend that continuous internal assessment of the pupils' work throughout the year be accepted as a policy supplementary to the external examination. It should include class tests, quarterly tests, written assessment and home work. It should be given adequate weightage and the awards secured should be separately indicated along with those obtained in the annual examinations. A detailed scheme for carrying it out is indicated below :—

- the system of internal assessment should be incorporated in the examination system. Fifty per cent marks in a subject should be earmarked for internal evaluation and fifty per cent for the written external examination held annually. The in-service teachers are not fully equipped and trained to undertake this task. Therefore, to begin with, the percentage of marks for internal assessment may be 25 per cent.
- The in-service teachers should be provided adequate training for working the scheme efficiently. This responsibility should be given to the Institute of Educational Studies discussed elsewhere in this report.
- A comprehensive scheme must be developed for the purpose. The internal evaluation should be spread evenly over the year and should be based on class tests, home assignments, two quarterly tests and other written assignments. The weightage to be assigned to each should be communicated to the students in the beginning of the session. Records of assessment should be meticulously maintained. It may be necessary to develop a proforma for a systematic maintenance of records. Much literature is available on this issue, and it would be desirable to consult the latest on the subject for developing a proper proforma.
- The records of the assessment should be open to inspection by all concerned i.e., the students, the parents and the teachers. It will help in building the credibility of the system.

- The supervisory officers must scrutinise the assessment at the time of school inspection and try to ascertain its objectivity and reliability.
- The students must be made aware of the award based on the assessment. It would be desirable to display the assessment for all the students on the notice board.
- The internal assessment marks should not be added to the external examination marks. The two should be shown separately in the mark-sheet, and the students may be required to pass separately in each.
- A comparative study of Internal and External assessment should be made for each school to study the discrepancies between the two. This responsibility should be taken up by SCERT. The SCERT should prepare a note on discrepancies for each school and develop a mechanism for exercising a check and balance so that the credibility of the scheme may improve.

8.47. We have found that the present method of holding the examinations is not satisfactory. The supervision and the scoring procedures have lost their credibility. The use of unfair practices is on the increase. Over the years the number of candidates seeking re-evaluation of their scripts has increased manifold, and we have been told that, in a large number of cases, it changes the previous results significantly. The credibility of our system is fast disappearing.

Conduct of Examinations.

8.48. Our discussions with the authorities reveal that teachers are not voluntarily coming forward for sharing this responsibility, and a great difficulty is experienced in associating them with the examination work.

8.49. To overcome these limitations the following approaches are suggested :—

- Examination work should be made a part of the total responsibility of the teachers; supervision work and evaluation should be made obligatory.
- The Heads of the schools should forward a list of the teachers for performing these duties, an every teacher must get his turn through the process of rotation.
- An appropriate mechanism to supervise and coordinate the work of evaluation must be developed.
- The paper setters, the examiners and others concerned with examination work must be prepared for meeting the new challenges. The responsibility for preparing the teachers should be with the Institute of Educational Studies and Development discussed elsewhere.
- And above all, a code of ethics for the evaluation of their pupils must be evolved by the community of teachers themselves to make our examination system clean and our profession noble.

SUMMARY OF

CHAPTER VII : EXAMINATIONS

1. Examinations are an integral part of the total educational process, particularly because they have linkages both with teaching and learning. The teaching learning process and the examinations constitute a unity of functions. The examination system that is followed, thus, will have implications for the effectiveness of the teaching as well as the quality of learning.

2. The examination component of the educational system has two broad objectives, namely (a) to serve as a feedback mechanism with regard to the effectiveness of the teaching learning process enabling us thereby, to take corrective measures, and (b) to classify the students at the end of a pre-determined period (in our case annually) for purposes of promotion.

(8.01-8.02)

3. In our situation examinations are being used mostly for the classification of students. The feed back function, though important for the improvement of the teaching learning process, remains ignored.

(8.03)

4. There has been wide-spread interest in the question of the reforms of our examination system over the years. At present this assessment is done on the basis of evaluating the performance of the students in a public examination held annually. The failure rate generally ranges between 50 and 60 percent, according to the available statistics. It has been stressed time and again that the Examination System does not really project the true merit, ability and talent of the students.

(8.04)

5. The question of examination has been reviewed by successive Committees and Commissions on Education. Each one of them enlisted the deficiencies and harmful consequences of examination; yet not much has been done by way of reforms.

(8.05)

6. The University Grants Commission conducted a survey in 1962 to elicit information about examination practices from various educational institutions, and the data revealed a great diversity among these institutions in respect of the nature of examinations; the scope and application of internal assessment; the nature of question papers; the marking of examination scripts; and the classification of examination results and research in this field.

7. The study revealed major shortcomings of examinations, of which perpetuation of essay type questions, annual system of examinations with complete disregard to internal assessment as a part of teaching process, the high rate of failure and insistence on separate pass marks for different subjects are the dominant ones which cast adverse reflections on the quality of teaching, feed-back and infrastructural facilities. Our studies of the examination system in Punjab also revealed similar shortcomings. (8.09)

8. The Education Commission (1964-66) highlighted the magnitude of the problem of examinations, and felt that the minimum attention was being paid to independent study. Cramming was being encouraged, which has left a crippling effect on the quality of education in universities. What is true of higher education is equally true of the school education. (8.10)

9. This Commission (1964-66) was of the view that one line of attack could be to abolish set syllabi and the external examinations based on them and to replace them by a system of internal and continuous evaluation of the students by the teachers teaching them. But this approach, perhaps, is too radical for our education system at present. It may not be possible for a long time to do away with external examinations altogether. But alternative strategies, such as introduction of more frequent periodical tests to reduce undue emphasis on final examination; reform of the evaluation techniques; and introduction of a system of internal assessment as a supplement to the external examination could be tried. We are in complete agreement with these suggestions. (8.12-8.13)

10. In 1981 the UGC brought out a monograph on 'Education Reforms' in which it reiterated the deficiencies that a number of Committees and Commissions had earlier pointed out. In spite of the urgent need of the examination reforms much has not been accomplished so far (8.15-8.16)

11. It appears that many efforts have been made to clearly formulate the suggestions to remove the glaring shortcomings of the examination system, yet the goals to be achieved still remain dim and distant. The system of examinations in Punjab is almost identical to others in the country. Annual examinations are the basis for promoting students from one class to another. Except for examinations at the end of each stage of the 11 years of the school cycle, the schools conduct their own annual examinations, which are preceded by two quarterly tests. But these tests do not serve any useful purpose, for they are neither used for providing feed-back nor are they included in the overall assessment of the student at the end of the year. The Punjab School Education Board conducts examinations at the end of primary, middle and high/higher Secondary stages of the 11 years' school cycle prevalent today. (8.18-8.21)

Present
Status of
examination in
Punjab.

12. The arrangement for the conduct of the class V examination is dyarchical. The question papers are set by the Punjab School Education Board; and conduct of the examination, including the marking of scripts and the declaration of results is the responsibility of the BPEO's. This arrangement is unsound academically and it should be replaced.

This examination should be made the responsibility of one integrated agency. The ideal situation would be to entrust it to those who teach and thus it would be possible to eliminate the public examination at this stage and substitute it by continuous internal assessment. But because of the prevailing distrust and lack of credibility of our internal examination it may be desirable to continue to hold an external examination at the end of the primary stage. In our opinion the school complex would be in the best position to hold this examination without involving the Punjab School Education Board. It should be possible to entrust the whole examination to them.

(8.29—8.31)

13. In the class V examination scheme the overall weightage given to all subjects is not equal. It is on the higher side to the first language and mathematics and on the lower side to the second language, general science and social studies. Academically, it will be desirable to make the weightage for all subjects equal.

(8.25)

14. We have studied the trend of results in this examination and find a sudden spurt in the pass percentage. This is not necessarily indicative of improvement in standards but reflects a conscious effort on the part of teachers in primary schools to promote the maximum number of students.

(8.28)

15. We have examined the schemes on middle and high school examinations. In many respects they are found similar, and in view of these similarities they are discussed together. It has been found that at both these examinations, there is a clear mal-distribution of weightage for different subject areas. The languages have been assigned $37\frac{1}{2}$ weightage in the class VIII examination, which is on the higher side. Another serious flaw in the scheme is that the minimum pass marks for different subjects are not equal and this has resulted in lowering the standards in these areas. To maintain the standards the minimum pass marks should be uniformly fixed for all subjects as 33 per cent, and not at 25 per cent in some subject areas and 33 per cent in others

(8.33-8.34)

16. Similarly, at the high school stage, too, there is a lopsided distribution of marks among the various subjects,

languages have got 42 per cent and the remaining five subjects only 58 per cent weightage in the scheme of examinations. Another flaw is in the division of weightage among the three languages which is not equal. It will be desirable to bring about rationality in the whole scheme by keeping in view the contact time allocated to different subjects.

(8.36-8.37)

17. In both the VIII and X class examinations more emphasis has been given to theory papers and less to practical work. Work experience and allied subjects that have been proposed to be made an integral part of the curriculum must be given due weightage in the scheme of examinations.

(8.38)

18. In the class VIII examination there is a total lack of internal assessment, and in the Class X examination the weightage given to internal assessment is barely 10 per cent. It has been realised that external examinations will continue to remain with the system and that the system of internal assessment as an alternative would not be acceptable, nor even feasible at this stage. But internal assessment can be introduced as a supplement to external examinations, with adequate weightage assigned to it. Both in the class VIII and X examinations it should be at least 25 per cent to be increased to 50 per cent over a period of time and carried out evenly over the years according to the guidelines issued by the department of education.

(8.43-8.45)

19. We suggest the following scheme for internal assessment to improve the utility and credibility of our examination system.

- Internal assessment of pupils should include class tests, quarterly tests, written assignments and home work.
- The in-service teachers should be provided adequate training for working the scheme successfully.
- The internal assessment should be spread evenly over the year. The weightage assigned to internal assessment should be communicated to the students in the beginning of the session.
- It may be necessary to develop a proforma for maintaining records of students' performance.
- The records should be open to inspection and scrutiny by all concerned — the students, the parents, the teachers and the supervisors.
- All concerned must be made aware of awards based on assessment which can be displayed on the notice board.

—Internal and external awards should not be added up. The two should be shown separately.

—A comparative study of internal and external assessment to be conducted by SCERT would reveal discrepancies in each school. This will improve the credibility of internal assessment and help in developing a mechanism for improving the same.

(8.46)

Conduct of
Examinations.

20. The present method of holding examinations is not satisfactory. The use of unfair practices is on the increase, teachers are not voluntarily coming forward for sharing responsibility. The credibility of our system is fast disappearing. To overcome these limitations the following approaches are suggested:

—The examination work should be made a part of the total responsibility of teacher,

—The heads of schools should provide a list of teachers for performing these duties and every teacher must get his turn through the process of rotation,

—A mechanism to coordinate and supervise the work of evaluation must be developed,

—The proposed Institute of Educational Studies and Development should be entrusted the responsibility for preparing examinations and others concerned with examination work for meeting the new challenge,

—To make the examination system clean, a code of ethics for the evaluation of the pupils must be evolved by the teachers themselves.

(8.49)

CHAPTER IX

SPECIAL SCHEMES

9.01. Social justice requires that educational opportunities for development should be available to all sections of the community irrespective of their socio-economic condition or status. There are certain sections of the community that are unable to make use of the normal educational facilities due to their socio-economic environment. It has been the concern of all governments to remove impediments in the way of the vertical mobility of these sections commensurate with their ability and capacity to benefit from the special schemes devised by them and directed towards these target groups such as,

- (a) economically and socially backward sections (scheduled castes and tribes);
- (b) socially backward sections such as girls/women.

9.02. It has also to be recognised that any society that does not develop its man power resources to the optimum, cannot provide social justice within the society. With that objective in view the optimal development of its talent cannot be neglected by any society expect at its own peril. The Government has, therefore, also to pay special attention to its gifted students. No significant headway has been made in this respect. We would like to stress the importance of bridging this void in our educational policy to provide the balance that is necessary in any educational service to the community.

9.03. Most State Governments devise special schemes to supplement their normal educational effort to achieve the twin objectives of social justice and optimal development of its man power resources mentioned above. We, therefore, conceive of two types of special schemes to provide a balanced educational system to cope with the requirements of our society, and we shall deal with them separately :

- (a) schemes directed towards special target groups that need assistance for their normal development; and
- (b) schemes for developing our man power resources.

9.04. After attaining independence, it was but inevitable to pay special attention to the education of children of the under-privileged classes, i.e. scheduled castes and tribes whose educational needs had almost been ignored earlier. Their enrolment in educational institutions before independence was far from satisfactory. During the year 1947-48, they were

Scheduled
Castes/
Backward
Classes.

just 6.93 per cent of the total school population. Their poor enrolment was attributed to socio-economic factors and their cultural deficiencies. To promote education amongst these groups the Education Department devised schemes to provide incentives so as to improve their enrolment and retention ratio in the education system.

9.05. These were :—

- (a) free tuition at all levels;
- (b) reimbursement of examination fees; and
- (c) fixed stipends for all children in this target group.

The first two measures were meant to provide them with free education, and the third was to give them some financial incentive to support their education. Table 9.1 shows the effect of these initiatives taken by Government.

TABLE 9.1 : Enrolment of scheduled castes/scheduled tribes.

Year	Enrolment Primary I—V			Enrolment Secondary VI—X			%age of total SC/ST enrolment to total enrolment
	Total	SC/ST	%age of SC/ST to total	Total	SC/ST	%age of SC/ST to total	
1948*	387,302	29,844	7.70	127,037	5,793	4.56	6.93
1967	1,297,536	198,005	12.26	519,307	58,820	11.33	14.23
1971	1,399,333	223,534	15.97	646,054	80,097	12.39	14.84
1976	1,936,521	456,889	23.59	766,375	107,720	13.96	20.86
1977	2,052,161	562,966	27.34	812,400	130,028	16.00	24.13
1981	2,070,664	608,563	29.39	964,486	175,043	18.15	25.82
1982	2,008,414	595,320	29.64	968,700	186,619	19.26	26.26
1983	1,923,943	565,586	29.40	986,777	191,107	19.37	26.00
1984	19,36,177	572,641	29.57	1,011,222	197,415	19.52	26.13

Source : Report on the Progress of Education in the Punjab-1947 D.P.I. East Punjab—Statistical Section DPI(S), Punjab, Chandigarh.

9.06. It will be observed from this table that there has been a gradual increase in the enrolment of the SC/ST since independence. The enrolment of this group of students at the primary level was 7.70 per cent of the total during the year 1948. This enrolment ratio doubled in the next two decades and trebled during the next ten years; and by the year 1981 the

*SC/ST were categorised under depressed classes.

enrolment ratio was 29.39 per cent which, we reckon, is approximately the optimum, as the enrolment has been steady around this figure since then. The enrolment position at the secondary level has also shown a similar trend, and has increased from 4.5 to 19.5 per cent and stabilised at that figure. It would appear that optimum enrolment in this sector has also been achieved, consistent with that in other categories. Since these measures have had the desired effect of encouraging education amongst this target group, we recommend that they should be continued.

9.07. In respect of the stipend scheme, however, the rate of the stipend to mitigate their financial difficulties was fixed in the year 1969 as follows:

TABLE 9.2 : Scholarship to the Scheduled Castes/Scheduled Tribes

Category	Stage	Rate of Scholarship	
		Day Scholars	Boarders
(a) Denotified Tribes	Primary	Rs. 2	Rs. 17
	Middle/High/Higher Secondary	Rs. 5	Rs. 25
(b) Scheduled Castes/Tribes	Middle	Rs. 3 for boys Rs. 6 for girls	
	High/Higher Secondary	Rs. 19/25 for boys Rs. 20/25 for girls	

Source : D.P.I. (Primary) Punjab, Chandigarh Scholarship Branch, DPI(S) Punjab, Chandigarh.

We recommend that these rates be revised. They are now hardly adequate to mitigate economic distress due to erosion in the value of money as a result of inflationary pressures. They should be upgraded suitably, taking into account the present price index etc.

9.08. In addition to these incentives, the Social Welfare Department of the Government of Punjab, during the year 1976-77 devised some additional schemes for the scheduled castes/tribes students to improve their general performance in the matriculation/higher secondary examinations. Their performance in the matriculation and higher secondary examinations was found below par. It was, therefore, argued that if we wanted to help them in real terms, measures should be taken to improve their merit at this level. With this objective in view the following schemes were initiated :

Pre-Matriculation Extra-coaching scheme.

- (a) supply of text-books and stationery free of cost:
- (b) special pre-matriculation coaching for SC/ST students.

Both these measures were steps in the right direction. We have considered them carefully, and recommend that they should be continued.

Pre-Matriculation
extra coaching
scheme.

9.09. The scheme for pre-matriculation coaching, in our view, needs some revision. The scheme was devised to improve the merit of these students by giving them additional coaching for a period of about six months in a year at this level. It was argued that their parents are illiterate and cannot guide their wards; so this additional coaching was considered desirable to remove their deficiencies in three subjects of study, namely, English, Mathematics and Science, which are compulsory subjects and in which the failure rate was considerably high. This measure was aimed at achieving the twin objective of improving the pass percentage at the matriculation/higher secondary level in general, and improving the merit of the brighter students in this group in particular, enabling them to secure credit in these examinations for getting admission in the institutes of higher learning and professions, not merely through reservations but also on their own merit.

9.10. We have examined this scheme very carefully and feel that while it is well motivated conceptually, in operation it suffers from a few deficiencies. For instance, to start with, the scheme is controlled and sponsored by the Social Welfare Department, but as the scheme is operated in the schools, that department is not in a position to take steps to monitor it. The monitoring of such schemes is very important to ensure that their objectives are fully achieved. This monitoring can only be done effectively by the heads of schools, who should be involved in this process. The teachers who teach must be made accountable for their performance and progress. Appropriate measures should be taken to keep a check on it. This is not happening under the present arrangement. We recommend that the scheme should be operated under a unified control, i.e. it should be transferred to the Education Department.

9.11. The scheme provides for extra coaching for a period of six months to remove deficiencies in the three compulsory subjects and improve the students' merit. The central concern in the coaching scheme is to improve the merit of this group of students to enable them to stand on their own feet. On the basis of the information available to us we have come to the conclusion that this extra coaching for one hour a day at the secondary level for six months in a year is not adequate to improve their merit, particularly when it is only confined to three compulsory subjects. We believe that efforts should be made to improve their all round general merit and not coach them only in 3 subjects. We recommend that this effort to improve their merit should be extended to two years of the secondary cycle and in all curricular subjects wherever the deficiency lies, and that the coaching should be individual and

specially tailored for them. This scheme at present is confined only to the pre-matriculation period. We feel that in order to achieve results this process should be continued even during the two years of the Senior Secondary stage. It is only through a continuous programme of special coaching over a sufficiently long period of time that some significant improvement can be achieved.

9.12. This Coaching Scheme within the present context is for helping the average scheduled caste/tribe students to overcome their deficiencies. The bright students amongst them are likely to benefit only marginally from it. We feel that for them a separate scheme needs to be devised to enable them to improve their merit so as to enter the main stream of life and stand on their own feet. We shall be dealing with such a proposal later along with a scheme for other students.

9.13. The other sociologically backward group that received scant attention before independence was that of girls/^{of girls.} women. In spite of the fact that women constituted as much as 46 per cent of the total population, the Government paid very little attention to their education. Further, due to sociological factors at that time the participation of women in the mainstream of our life was not encouraged. But this had to be changed after independence, as the society could not tolerate that 46 per cent of its human resource should remain passive and ineffective.

9.14. Immediately after independence, therefore, the national government set about correcting this imbalance in the pattern of education in respect of women's education in our society. They constituted a number of committees to examine this problem in detail and advise the Government with regard to the policy to be followed and measures to be taken in this respect. Notable amongst these were:—

- i. The National Committee on the Education of Women;
- ii. The Committee on the Differentials of Curriculum for Boys and Girls; and
- iii. The Committee on Problems of Education in less Developed States.

On the basis of their recommendations the Government decided to give priority to women's education in their five year plans. This resulted in a number of schemes being initiated by the State Governments for women's education sponsored by the Central Government with or without central assistance.

9.15. The approaches adopted by the Punjab Government to promote girls' education, besides initiating a mass movement for women's education, were the following:—

- opening of primary schools for girls in rural areas;
- opening of JBT Schools for girls to prepare more women teachers for appointment in primary schools; and

- grant of half tuition fee concession to the girls only (at the secondary level) whose parental income is up to Rs. 6,000 per annum.

9.16. This massive movement for promoting girls' education and the measures taken both by the State and the Central Governments paid dividends and had a substantial effect on bridging the gap between the education of boys and girls within the state, as would be evident from the statistics shown in the table given below :

TABLE 9.3 : Comparative Study of enrolment of Boys and Girls—Primary (I—V)

Year	Boys	Girls	%age of Boys	%age of Girls	Ratio between boys and girls
1948	307,874	79,428	79.49	20.51	1 : 26
1967	779,708	517,828	60.09	39.91	1 : 66
1971	825,831	573,502	59.02	40.98	1 : 69
1976	1,092,942	843,579	56.44	43.56	1 : 77
1977	1,150,289	908,872	55.86	44.14	1 : 79
1981	1,138,914	931,690	55.00	45.00	1 : 82
1982	1,104,835	903,579	55.01	44.99	1 : 82

Source : Report on the Progress of Education in the Punjab 1947-48-D.P.I. East Punjab, Statistical Section DPI(S), Punjab, Chandigarh.

9.17. We give below another table showing the sex ratio in the population based on the 1971 and 1981 census figures both for the total population as well as the 6—11 age group.

TABLE 9.4 : Sex Ratios in Population

Year	Male	Female	Sex Ratio	6—11 years		
				Boys	Girls	Sex Ratio
1971	7,266,515	6,284,545	1 : 0.86	10,668,877	9,228,330	1 : 0.87
1981	89,37,210	7,851,705	1 : 0.88	N.A.	N.A.	N.A.

Source : Statistical Abstract of Punjab 1983. The Economic Adviser to Government, Punjab, Chandigarh. Census of India, 1971, Punjab Series 17. (Part II.C(ii) Social and Cultural Table of Fertility Tables.

It would be observed from the perusal of the above table that the sex ratio in the State of Punjab in the year 1971 was 1 : 0.86 i.e. for every 10 males there were 8.6 females in the states. This ratio was also tenable amongst boys and girls in the age-group of 6—11. Complete information regarding sex ratio for

the year 1981 is not available but from the statistics available it would appear that the male to female ratio in respect of population had shown no significant changes from that of 1971. It could, therefore, be presumed that the ratio between boys and girls in the age groups of 6—11 and 11—14 would almost be the same as in the year 1971 i.e. 10 boys to 8.7 girls.

9.18. It will be seen from Table 9.1 that the percentage of boys and girls in the educational system in the year 1947 immediately after independence was 79.49 per cent of boys to 20.51 per cent of girls i.e. to every 10 boys there were only 2.6 girls in the school system. This ratio was remarkably low, and indicated a big gap between the enrolment of the two sexes in the schools, but this situation had changed considerably by the year 1971, when this ratio had risen to 6.9 girls to every 10 boys; and reached its optimum by the year 1981, when this ratio stabilised at 8.2 to 10 respectively. From the statistics it can be inferred that the enrolment of girls in the primary schools has reached its optimum on the basis of the sex ratio in that age group.

9.19. The situation in respect of Secondary School is, however, slightly different, though it is much better than previously, as shown by the statistics given in Table 9.5 below :

TABLE 9.5 : Comparative Study of Enrolment of boys and girls (Secondary VI—X)

Year	Boys	Girls	%age of Boys	%age of Girls	Ratio between Boys and girls
1948	117,847	9,190	92.77	7.23	1 : .08
1967	358,414	159,893	69.15	30.85	1 : .45
1971	427,267	218,787	66.13	33.87	1 : .51
1976	488,542	277,833	63.75	36.25	1 : .57
1977	514,029	298,371	63.27	36.73	1 : .58
1981	591,016	373,470	61.28	38.72	1 : .63
1982	589,896	378,804	60.90	39.10	1 : .64

Source: Report on the Progress of Education in the Punjab 1947-48, D.P.I. East Punjab. Statistical Section DPI(S), Chandigarh.

9.20. It will be observed that the ratio of girls and boys at the secondary level even now is of the order of 6.4 : 10 while on the basis of the sex ratio it should perhaps be of the order of 8.6 : 10 much the same as at the primary level. We shall, therefore, have to take some measures to improve the situation at the secondary level. The drop-outs are, perhaps, due to sociological reasons. We may have to supplement our system by non-formal education and improve the choice of subjects for them.

9.21. Perhaps at this stage, along with the enrolment trends, it would be desirable to examine the retention ratios exhibited by the system. Tables 9.6 and 9.7 give the drop-out percentages for boys and girls separately for a group of students enrolled in the year 1973-74. We have chosen this year as the base year, as the students enrolled in that year would be reaching the end of the school cycle by 1982-83, for which figures were available with us. On comparing the two tables it will be observed that the drop-out ratios exhibit only a marginal differential between the girls and the boys. At the primary level it is 45.2 and 42.8 and at the secondary level it is 77.5 and 73.2 respectively.

9.22. It can be argued, therefore, that the enrolment and retention of the girls in the school system presents no special problem any more. The gap between the boys' and girls' education has narrowed down considerably at the primary level, and the existing gap at the secondary level shows signs of elimination during the next few years. We believe that a stage has been reached, when treating the girls as a separate target group is no longer valid. In fact if they do not participate in the normal educational programmes devised for the secondary stage, they may stand to lose in the long run.

9.23. However, we recommend that the incentives offered to them so far, which have proved so successful, should be continued to be enjoyed by them in the future. In addition, we feel that in order to improve their participation in programmes of secondary education, full fee concession should be granted to them beyond the elementary stage.

TABLE 9.6 : Percentage of Drop-outs at School Level (Boys)

Year	Enrolment									
	I	II	III	IV	V	VI	VII	VIII	IX	X
1973-74	295,707									
1974-75	278,797	22.05								
1975-76	317,381	18.65	29.32							
1976-77	342,076	25.93	24.89	34.11						
1977-78	348,770	25.82	33.27	31.02	42.84					
1978-79	333,311	29.84	37.80	41.04	43.87	47.34				
1979-80	323,083	26.30	38.57	43.59	49.08	44.31	53.65			
1980-81	325,760	23.33	35.68	45.68	52.76	50.97	51.24	54.11		
1981-82	323,244	25.85	35.56	44.17	58.21	54.18	56.48	55.10	67.32	
1982-83	270,205	20.80	37.45	43.68	55.55	54.98	70.59	61.35	34.49	73.28

Source : Enrolment figures—Statistical Section, DPI(S) Punjab, Chandigarh

TABLE 9.7 : Percentage of Drop-outs at School Level (Girls)

Year	Enrolment									
	I	II	III	IV	V	VI	VII	VIII	IX	X
1973-74	229,798									
1974-75	219,348	22.89								
1975-76	263,889	19.94	31.06							
1976-77	294,230	29.16	26.99	36.95						
1977-78	304,307	29.51	37.30	33.21	45.20					
1978-79	289,786	35.39	42.81	45.80	45.95	56.12				
1979-80	280,561	31.07	44.24	49.23	52.85	55.08	62.91			
1980-81	285,433	28.02	40.84	51.01	57.91	61.15	60.42	63.49		
1981-82	277,437	30.30	40.86	49.44	62.19	64.92	65.73	63.39	74.32	
1982-83	227,975	24.72	41.97	48.83	59.34	63.51	68.93	68.72	72.66	77.50

Source : Enrolment figures—Statistical Section, DPI (S), Punjab, Chandigarh.

9.24. In addition, we should pay more attention to their curricular needs at the secondary stage, and provide them with a choice of subjects more suited to their pursuits. We also recommend that against the scheme for gifted students a certain quota should be reserved for girls to motivate them for greater participation in the secondary education programmes.

Physically
and mentally
Handicapped
children.

9.25. The third target group as identified in para 9.01 of this chapter is constituted by physically and mentally handicapped children. This group could be further sub-divided into :

- (a) The orthopaedically handicapped who need special care and not necessarily special education and training.
- (b) The group that needs special care, attention and education and training programmes, includes the mentally retarded, blind, deaf and dumb.

For the education and welfare of the orthopaedically handicapped children no special institutions are needed. These children may need special care, but as they are mentally and senses-wise normal, they require no special programmes of education. Their education can be looked after in the normal children's schools.

9.26. The second group on the other hand, requires specialised institutions to take care of their welfare and education. At present the responsibility for this category of children is with the Social Welfare Department who, by themselves as well as with the help of the community, provide some special institutions for taking care of them, and organise appropriate educational programmes to enable them to stand on their own feet.

9.27. The state has five schools for the blind. One of them is being directly run by the Social Welfare Department, and four by the community. These schools provide regular education up to the matriculation standard to the children of school going age, and also give professional training in music and vocational training in arts and crafts, so that they may be able to gain economic independence.

9.28. For the mentally retarded there is one institution called "Home for the Retarded Children" aged between 5 and 16 years, that is run directly by the Social Welfare Department. This is a residential school for 40 boys and girls and aims at educating and training the mentally retarded in a specialised manner according to their capacity and aptitude, keeping in view the IQ of each child.

9.29. For the deaf and dumb there is no Government institute in the state, but different social organisations have set up such schools. The Social Welfare Department assists these schools by providing some grant.

9.30. Besides instituting and assisting the special schools, the Social Welfare Department gives financial assistance to the needy children receiving education and training therein. The rates of stipends vary from Rs. 15 to Rs. 100 per month according to the standard of the institution and the means of the family. The rates of these scholarships were fixed in the year 1969. These rates are now inadequate on account of inflation. It would appear to us that it would be necessary to revise them on the basis of the increased cost of living.

9.31. In addition, while all these efforts are commendable in themselves, we feel that they are not adequate to meet the needs of this target group. The government should be aware of the need to extend these facilities with the help of the community. The involvement of the community in such matters is of utmost importance. The Government can only act as a catalyst. While these facilities should be extended, we feel that they should continue to be controlled by the Social Welfare Department. We are, therefore, refraining from making any detailed suggestion in respect of them.

9.32. In the preceding paragraphs we have dealt with special schemes for the socially and economically deprived and handicapped children in the educational system. In 9.02 we had also argued that the development of human sources is as important for the socio-economic development of a nation as its physical resources. It is, however, often forgotten that education is a very vital instrument in this process of the development of our man power resources. There is paucity of competently trained man power in our country. This does not mean that, potentially, we are short of this resource. On the contrary, our human resources are rich and of a very high quality. The potential has, however, not been fully discovered and utilised; and no nation can survive without recognising its gifted children and exploiting the gift fully for its social, economic and cultural development.

9.33. It is unfortunate that so far the State Government has not developed any scheme for the development of the gifted. The present measures are confined only to their identification and awards of scholarships as a recognition of their special merit. There are three levels at which the gifted are identified—first at class V, second at class VIII, and the third at the high/higher secondary stages.

9.34. The scholarship schemes that the State Department of Education has introduced for the encouragement of the gifted are as follows :

TABLE 9.8 : Scholarships to the Gifted

Scheme	Number	Rate	Duration
Middle School on the basis of the 5th Class Examination	284	Rs. 15	3 years
Secondary Schools on the basis of eighth class	266	Rs. 15	2 years
Higher Secondary Schools on the basis of Matriculation	22	Rs. 22	1 year

Source : Scholarship Branch, DPI(S) Pb., Chd.

9.35. The number of scholarships and the rate of payment were fixed in the year 1969, and no revision has taken place since then. There is a need to revise both the number and the rate of scholarships, the former because the enrolment has gone considerably high and the latter because of the higher cost of living. The enrolment trend for these levels is given below :

TABLE 9.9 : Enrolment Trends

Year	V	VIII	X
1969	187,342	129,862	71,663
1981	285,422	219,587	133,115
1984	2,71,511	273,565	136,896

Source : Statistical Section, DPI (S) Pb., Chd.

9.36. The increase in enrolment at the 5th grade is 44.92 per cent, at the 8th grade it is more than 100 per cent and in the 10th grade it is around 90 per cent as compared to the enrolment statistics during the year 1969.

9.37. Keeping in view these unward trends in enrolment, it will be desirable to raise the number of scholarships at the middle and secondary school level to about 600 each, which roughly forms the same proportion i.e. about 0.20 per cent to the enrolment as it was during the year 1969, when the present number of scholarships was decided. This, we consider, is the barest minimum the state should provide.

9.38. The rates at which the scholarships are paid are also insufficient. This amount should be revised and suitably enhanced. At the present day index of living it would be desirable to pay at least Rs. 50 at the middle school level and Rs. 100 at the secondary level.

9.39. The grant of scholarships to the gifted is a step towards their recognition only. This approach, by itself, does not help in the improvement of their special abilities or in the development of their potential, though it provides them with some motivation to work hard.

9.40. The development of human resources is extremely complicated, and yet most essential for the development of a nation that is experiencing a dearth of competently trained man power in nearly every branch of its national life. Special strategies will have to be developed in the educational system to identify and train its potential human resources. We, therefore, suggest the following strategies for this very important task:—

- education of the gifted in specially identified schools, and under the best teachers;

- expanded programmes for the gifted; and
- special coaching camps for the gifted from different schools brought together in some selected schools during vacations.

9.41. The gifted students have a high level of ability and curiosity and an insatiable desire to learn, for the full growth and development of their special abilities. It would be desirable to educate them for at least 3-4 years continuously in specially identified schools that provide the best environment, i.e., facilities, good atmosphere and good teachers. The provision of 3-4 years of good and efficient education to the gifted will enable the state to cast its net wider for the development of its resources both material and human for the prosperity and progress of the state.

9.42. Ideally it could be conceived that this process of identification and development of the gifted should be started as early as possible for the maximum return, i.e. from the primary stage. But on account of the paucity of resources and difficulties to identify the gifted at a comparatively young age, it may not be possible for the state to do so at present, though eventually this should be feasible and its possibility should be kept in mind. We are convinced, however, that such a scheme for the gifted from the secondary stage is well within the means of the state and should be implemented without further loss of time.

9.43. At the current level of enrolment there are 2.73 lac students in class VIII. A review of the performance of this target group would reveal that the top 5—10 per cent of these students are gifted with special abilities, and they should be enabled to receive the best possible education.

9.44. At this stage it may not be possible for the state to make arrangements for the education of such a large number of students, i.e. about 14,000 (5 per cent of the students in this age group) in special schools. A beginning can, however, be made at least with the top half per cent. At the current level of enrolment the number of such students will be 1368. This group of 1300—1400 students should be given education and training in specially identified schools and a scholarship of Rs. 100 per month for four years of secondary education. The cost estimates of this scheme are given below:—

TABLE 9.10: Cost Estimates for the Gifted at the Secondary Stage

Scheme	Number of Scholarships	Rate of Scholarships	Duration of Scholarships	Total Cost
Gifted at Secondary Stage	1,400	Rs. 100	4 years	Rs. 67,20,000

It would appear to us that for any scheme for the development of human resources, unless a viable sample of the target group is taken, the chances of its success are reduced. We consider the number identified through the scholarships scheme of 600 much too small for the purpose. We have, therefore, recommended that the optimal size of such a group should be at least 1400 which would be twice the number identified for the merit scholarship scheme. This would include the 600 merit scholarship holders also.

9.45. We are not rigid in recommending the placement of the gifted in the specially selected schools only. Some flexibility would be desirable in this regard. The gifted may be allowed to continue in the local schools of their own choice, if some arrangements can be made for the development of their merit by giving them expanded courses there. In case some difficulties are experienced, the transfer of such students to the specially identified schools should be made possible any time during the course of four years of secondary education.

9.46. It would be desirable to organise special coaching camps in some selected schools during vacations for those gifted students who continue their education in the local schools. These camps will provide them opportunities of wider interaction both with their classmates in other schools and better teachers of the specially identified schools. This innovation is expected to be useful in the improvement of their merit.

Gifted
students
amongst the
Scheduled
Castes.

9.47. Similarly, there are meritorious students among the scheduled castes/tribes and other backward classes. It would be easier to remove their deprivation by giving them adequate assistance to advance educationally. It was felt that if meritorious students from within these classes are picked up at the middle standard examination level, given adequate scholarships to remove their economic deprivation, and placed in specially selected model schools to improve their merit during the course of two years at the secondary and another 2 years at the senior secondary stage, their performance could be improved to bring them into the mainstream. They could then complete with other students on merit, and many of them would be able to join the professional courses and institutes of higher learning with some relaxation, may be 5 to 10 per cent. They would then be equipped to cope with these courses, examinations and professions without complexes and without loss of valuable years of their lives. This will also help to reduce the tensions being generated amongst the youth who are beginning to feel discouraged as a result of reservations.

9.48. We have already suggested that the top half per cent students should be selected from the general pool for education and training in specially identified schools. We advocate the same ratio for the education and training of the meritorious students from among the backward classes. The

available enrolment statistics for this group of students in classes V and VIII are as follows:—

TABLE 9.11 : Enrolment figures for Scheduled Castes

Year	V	VIII
1984	66,132	39,898

Source: Statistical Section, DPI(S), Punjab, Chandigarh.

9.49. The top half per cent of the 8th class would be around 200. These top 200 students from among the backward classes should be placed in the specially identified schools with board and lodging facilities, and paid at the rate of Rs. 300 p.m. The scholarships should be paid to the schools to meet their board and lodging expenses. They should be exempted from paying fees and supplied text-books and stationery free of cost. The schools should pay these students Rs. 75—100 p.m. as pocket allowance and be made accountable for their progress to ensure improvement of their merit. The financial implications of this scheme will be as follows:—

TABLE 9.12 : Financial implications of the Scheme for the gifted from the Backward Classes

Scheme	Number of Scholarships	Rate	Duration	Total Cost
Gifted from Backward Classes	200	Rs. 300	4 years	Rs. 28,80,000

9.50. With these financial incentives and special educational facilities it will be possible for the state to turn out 1500—1600 talented students from the senior secondary schools every year; which will form the most valuable asset of the nation and provide competent and trained man power to various branches of national life.

9.51. Educational development of the state during the post-independence decade was marked by a high rate of enrolment expansion. The national plans and policies during that period were expressed mainly in terms of enrolment targets. The expansion of education during this period has altered in a fundamental way the composition of the student population by bringing to school pupils whose abilities, interests and environmental background provide a wide range of variation. We anticipate that this diversification of the student population will further increase with increase in the pupils' number in the coming decades. Our school system, as it is today, is primarily being geared to the needs of the relatively average pupil and ignoring the pupils at both the extremes.

9.52. The recent analysis made by educational commissions/committees as well as the recent national policy statements and plans reflect an increasing awareness of the fact that the educational programmes now, as distinguished from earlier stages, have to be formulated within the wider perspectives of national development, and the role of the educational system has to be adapted accordingly. More than anything else, good schools have a notable contribution to make in the development of highly trained man power and to bridge the gap that at present isolates the educational system from urgent national concerns.

9.53. It is in this context that it would be desirable to lay emphasis on the development of model schools, whose main concern would be the qualitative improvement of school education. The quality of education covers a multiplicity of processes, relationships and outcomes, and these are to be seen in terms of how far the pupils have been extended and what forms of knowledge, skills, attitudes and work habits have been developed. These model schools should be the centres of education and training for local students and the selected gifted and bright students from scheduled castes, and will be instrumental through emulation, in implementing the programmes of qualitative development in other schools in the neighbourhood. To make a beginning we strongly recommend that it may be desirable to select 7-8 schools from each district on the basis of their performance and resources, and to develop them as models to be emulated by others. We envisage a network of 100 schools in the beginning to be gradually expanded so as to double this number in a decade's time. These schools will strive to maintain and continuously improve the quality of education.

9.54. The strategy of qualitative improvement and change is concerned vitally with the question of how the improved practices are generated and diffused into the system. A complex variety of factors determine this. The principal among them are as follows:—

- The teachers, their qualifications and attitudes.
- Management of the Class room, Teacher-Pupil ratio, or the size of the class.
- The total environment, infrastructure and grants.

Faculty.

9.55. The single most decisive factor in improving the quality of instruction is the teacher, as the impetus for a qualitative change and growth in the class rooms is to come from him. In this system it will be desirable to have selected teachers, who should be specially recruited for working in the model schools. To attract the talented teachers the following incentives, which are the bare minimum, must be provided:

- (a) 2—5 advance increments in the pay depending upon their qualification and experience;

- (b) Special allowance up to 15 per cent for working in Model Schools; and
- (c) Rent free accommodation or a House Rent subsidy.

9.57. The qualitative development at the level of institutions, besides the better qualification of teachers, would also depend upon the class room—its management and size. For generating innovative practices for effective class room control and individual attention to the students, and for the development of free expression and creative work in the pupils, the class size should not be large. It would be desirable to put the maximum limit to 35.

9.58. In these model schools, some expanded/accelerated programmes for gifted students will be introduced and for that additional library and laboratory facilities will be required. For having a better educational environment, within which these schools will function and evolve an institutional base, it will be desirable that some additional grants be allocated to these schools for carrying on new practices. We feel that an additional grant at the rate of Rs. 50 per mensem per gifted student be provided to these schools. **Environmental facilities.**

9.59. We envisage that this network of 100 model schools in the State, besides imparting knowledge, would pay special attention to the development of character, attitudes and work habits, and would give training in citizenship. For this purpose, a variety of co-curricular activities must be organised and these schools should be paid special grants for that purpose. To start with, a provision should be made to allocate funds at the rate of Rs. 10 per mensem per student.

9.60. Some gifted students, brilliant students from Scheduled Castes/Backward Classes and some others may be required to stay in the boarding house. Provision may be made for boarding and lodging facilities for those students. To make a beginning arrangements may be made for 50—100 boarders in each of these model schools.

9.61. To enable the teachers to supervise the pupils' work and activities and interact with them effectively it will be desirable that they be provided residential facilities on the campus. To make a beginning a provision may be made for 20 per cent faculty to reside on the campus and proposals developed for extension of this facility to all members of the faculty in due course.

9.62. These schools must monitor the progress of the students. A meticulous record of the performance of students should be maintained. For this purpose it will be necessary that cumulative record cards be maintained for all these students and, for the full realisation of their learning potential, counselling services be provided. The details regarding the nature of these services are discussed elsewhere.

9.63. In these schools it would be desirable to use alternative methods of teaching for achieving educational goals. The magnitude of educational tasks has increased considerably and brings a growing recognition that the traditional methods may no longer be effective. The proposed model schools will be in a better position to find technological substitutes for traditional methods of teaching and for enhancing the educational effectiveness of the available manpower through the use of educational technology. These schools will also function as nucleus schools and learning resource centres for the School Complex.

School
complex.

9.64. The most significant contribution made by the Education Commission (1964—66) was in respect of the projection of the idea of school complex to improve the standards of education at the school level. With the universalisation of primary education it was anticipated by them that the education system at the primary level, as well as at the secondary level, will expand so much that the normal procedure of providing academic leadership and supervision from the Block/District Headquarters would be inadequate to maintain standards.

9.65. They also anticipated that with this phenomenal expansion of the system and the community interest and involvement in education and educational programmes, the administrative work involved in its management will increase to such an extent that the education functionaries will not get enough time to visit the schools for purposes of supervision, inspection and guidance, as per old perceptions and practices. The Education Commission (1964—66), therefore, envisaged the separation of the administrative function and the academic role at the grass-root level within the system for its efficient functioning. In order to do that they conceived the idea of cooperation between schools at different levels within a neighbourhood, which could academically interact with one another leaving administrative control to the normal set-up in different states, depending upon their local traditions and circumstances.

9.66. It is in this context that the scheme of school complex is relevant, and we suggest its adoption in the State of Punjab at as early a date as possible. At present in the State of Punjab, there are 2,446 secondary, 1,469 middle and 12,389 primary schools. These schools can be clustered in a meaningful way. There is a secondary school within a radius of 5—8 Kms. and it will be desirable to integrate all the schools into 2,446 complexes, so that every high school should become a nucleus for academic interaction between 5—7 primary schools including one middle school falling in its vicinity. The cluster of these schools within one complex will be a manageable group, which can function with close cooperation, and will be easily accessible for purposes of guidance and interaction. The scheme may be introduced in

- (3) to organise in-service education of teachers of primary schools on a continuous basis. The nucleus school can provide this service in collaboration with the learning resource centre. Most of the expenditure that is incurred at present through the payment of TA/DA can be saved by arranging these courses locally for the teachers;
- (4) to share certain facilities and equipment which cannot be provided separately to each school. This will include projector, video, cassette players, T.V. and A.V. Library for students and teachers. Each complex would receive instructional material, films, filmstrips etc. from the staff development centres/learning resource centres, and the schools within the complex would, thus, be in a position to utilise these services with the help of the staff that would operate these aids. In due course every complex school can be provided this material and equipment;
- (5) to give the benefit of demonstrations or practical work to the students of the primary schools in the specially developed laboratory of the nucleus school; a facility which cannot be made available in every primary school;
- (6) to develop a good library in the school complex. The books from the library may be circulated in all the schools within a complex; and
- (7) to promote community involvement and participation in the education system, which every individual school may not be able to do due to its limited man power resources. Further, in a complex all the schools form one unit for development purposes and, thus, it would be easier to mobilise community resources for the development of weaker schools.

Need for Community Involvement in Education

Community involvement in education.

9.72. Since independence there has been a phenomenal expansion of educational facilities at all levels in our country due to various factors, such as fulfilment of the constitutional obligation for providing universal primary education to all children up to the age of 14 years, the increasing social demand for education, continuing growth of the population of school-going children and the need for meeting man power requirements of the growing economy. As education spreads and becomes more mass-based, the need for linking the school and the beneficiaries directly becomes imperative.

9.73. Parent-Teacher Associations (PTA's) form the most important mechanism in Punjab for purposes of promoting community involvement and participation in education.

PTA's have been started in all schools in the state. In rural areas PTA's have in some cases, provided support in the form of land, construction and maintenance of school buildings, provision of furniture and equipment, levelling of playgrounds by village farmers, provision of drinking water facilities and lavatories in schools, construction of approach roads, plantation of trees, installation of tube-wells, provision of books and clothes to poor students, construction of boundary walls and temporary sheds, organisation of games/tournaments etc.

9.74. Each parent-teacher association has a General Body, which is constituted by parents/guardians of the children studying in the school, all teachers working in that school, the Sarpanch of the Village, a Lady Member of the Village Panchayat, a Scheduled Caste member of the Village Panchayat, other influential persons e.g. doctors, landlords, etc. and renowned educationists residing in the locality. Besides, persons desirous of the welfare of the school can also become members of the PTA with the approval of the General Body.

9.75. Each PTA has also an Executive Committee, which consists of a President, a Vice-President, a Secretary (he is a member of the school staff), a Joint Secretary and a member representing the General Body of PTA.

9.76. We held several meetings with the Directorate of Education and representatives of some of the PTA's in the State. These discussions proved very useful. It was observed that while some valuable support had been forthcoming from the PTA's during the past, the involvement of the community in the educational system has not been sufficient to create any perceptible impact. The involvement of the community in the management of the educational system has been marginal. Yet there seems to be no other mechanism available to us for the active involvement of the community in the educational process, which appears to be a must for the efficient management of an extensive educational system.

9.77. In order to improve upon the present situation and to encourage greater participation of the community in providing good education for their children, which is the only way in which we can secure their involvement, we would need to share with them as partners the organisation of the educational system. This process can be initiated by creating a three tier organisational structure for community participation i.e. at the institutional level and then at the Complex and the District levels, forming a sub-system supporting the following steps to be taken :

- (i) the existing structure of the PTA's at the institutional level may be reorganised and revitalised;
- (ii) A PTA may be set up at the level of the school complex; and

- (iii) an Advisory Educational Committee/Body may be constituted in each district.

9.78. We are for the reorganisation of the existing mechanism of PTA's, because it has been found that the present set-up has not been able to give maximum support to education. The influence of the PTA's should be enhanced for increasing educational opportunities and the efficiency of the system. This objective could be achieved by re-organising the present structure of the PTA's and restricting their membership to only those members of the community who have some commitment to the development of the system, for example as parents, and, thus have the maximum benefit of the involvement of the community for increasing the operative efficiency of the educational process. This would require, at this crucial stage, restricting the membership of the PTA probably to parents and teachers only for maximum commitment and motivation.

9.79. Further, to secure community involvement it seems necessary to ensure their participation by associating them with the processes of planning and supervision and involving them to share the responsibility of providing good education for their children. This would enthuse the community and revitalise the PTA's.

9.80. The main functions of PTA's in this context may be as follows :—

- (i) To conduct household surveys for ascertaining the number of non-enrolled and non-attending children in the age group 6—14 years.
- (ii) To identify educational needs of the locality to be met through formal and non-formal channels.
- (iii) To help in achieving the targets for the universalisation of elementary education.
- (iv) To assess existing resources and to mobilise additional resources (men, money and material) for meeting the identified needs and for achieving the planned targets within a well conceived scheme of priorities.
- (v) To formulate, implement, monitor, supervise and evaluate institutional plans with special emphasis on education of the target groups.
- (vi) To ensure qualitative improvement of education.
- (vii) To establish linkages with developmental agencies (both governmental and non-governmental).

- (viii) To adopt schools at the primary/secondary levels of comparatively low performance and to take adequate measures for the improvement of such schools.

9.81. The School Complex PTA will constitute the second tier in the proposed three tier structure suggested in para 9.77 above for community involvement. As the School Complex implies the association of a number of schools within a geographical area of 6—8 KMs consisting of 4 to 6 primary schools, a middle school and a secondary school, with all the schools within the complex functioning as a unit drawing on one another's resources and planning for development with minimal external support, it would be logical to presume that the complex should be treated as one unit and its educational planning and monitoring should be under unified control. Hence the need for a PTA at the Complex level, which could ensure and monitor uniform development and growth of all the schools in it.

9.82. Each school complex may set up a committee of its own, to be called the Complex PTA, consisting of the principal, some teachers of the nucleus school and at least two members of the PTA of each constituent school, of which one should be the headmaster or a teacher and the other a parent.

9.83. The main functions of the school complex PTA committee may be as follows :

- (a) to help constituent schools in the formulation of their institutional plans ;
- (b) to help balwadis, anganwadis, primary schools, non-formal education centres and adult education centres within the complex in establishing linkages and providing locally available resources, human as well as material; and
- (c) to monitor and evaluate institutional plans of development and to take timely remedial action based on feed-back.

9.84. District Education Officers and Sub-Divisional Education Officers may keep an eye on the functioning of school complex PTA's within their respective jurisdiction, and provide them the necessary guidance and support from time to time.

9.85 An Education Advisory Committee may be set up in each district as the third tier, which may consist of the District Education Officer, Sub-Divisional Education Officer and Principals of Central Schools of the school complexes in the district, two representatives of the learning resource centre and other development departments and 5 to 6 eminent public men at the district and block levels. The main functions of this committee may be as follows :

- (i) coordination, monitoring and evaluation of the work related to the institutional plans developed by each school within the district;

- (ii) forging linkages with other government departments and non-governmental agencies with a view to utilising their resources for educational development; and
- (iii) to identify the weak schools and monitor their progress.

9.86. To identify the weak schools and monitor their progress, the State of Punjab may like to have the benefit of the experiment launched by the Maharashtra State. This experiment was initiated to improve the management of the weak schools, and to reduce the percentage of failures and drop-outs, and is known as "Rapport-based School Programme of Improvement". According to this experiment 957 secondary and 10,735 primary schools were identified and put under the charge of a special officer for their development. The details of the experiment are given in the appendices.

9.87. We recommend the development of weak schools through the participation of the community as follows :

The District Advisory Committee would identify the weak schools, and for this purpose it would evaluate the primary schools and grade them on the basis of the results, drop-out ratios and inspection reports.

The identified weak schools would be adopted for improvement by the School Complex Committee. The School Complex Committee would develop its programmes for the development of the identified weak schools.

The District Advisory Committee would monitor the proposals of the School Complex Committee to improve the schools by arranging for both fiscal and academic support needed by them.

The main objectives of these programmes would be :

- (a) to improve the management of the schools;
- (b) to improve the pass percentage and standards of teaching and learning;
- (c) to reduce the drop-out ratios; and
- (d) to provide educational facilities through programmes of non-formal education to the drop-outs.

Special schemes would need to be prepared by each District Education Officer for helping weak schools in his district in a phased manner.

9.88. Through the proposed three tier organisational structure of the PTA's as discussed above, we hope that a beginning can be made to make the development of education a joint effort between the community and the state.

SUMMARY OF

CHAPTER IX: SPECIAL SCHEMES

1. Social justice requires that educational opportunities for development should be available to all sections of the community, irrespective of their socio-economic status. There are certain sections of the community that are unable to make use of the normal educational facilities due to their socio-economic environment. In order to ensure equality of opportunity and to remove impediments in the way of the vertical mobility of these sections the Government devised special schemes for :

(i) economically and socially backward classes (Scheduled Castes and Tribes); and

(ii) socially backward sections, such as girls and women. (9.01)

2. It has also to be recognised that any society that does not develop its manpower resources to the optimum cannot provide social justice to its people. With that objective in view, the optimal development of its talent cannot be neglected. The Government, therefore, has to pay special attention to the gifted students as well. (9.02)

3. In order to supplement the normal educational effort to achieve the twin objectives of social justice and the optimal development of man power resources, we therefore, conceive of two types of special schemes, namely,

(a) Schemes directed towards special target groups (scheduled castes, backward tribes and girls and physically and mentally retarded children) that need assistance for their normal development; and

(b) schemes for developing our manpower resources. (9.03)

4. After attaining independence it was inevitable that the Government should pay special attention to the education of children of the under-privileged classes as their enrolment ratio in educational institutions during the year 1947-48 was just 6.93 per cent of the total school population. The Education Department adopted the following measures to provide incentives to improve their enrolment and retention ratio, Scheduled Castes and Bakward Classes.

(a) free tuition at all levels ;

(b) reimbursement of examination fees; and

(c) fixed stipends for all.

These measures had the desired effect of encouraging education amongst this target group, as is evident from the increase in enrolment ratio, which rose to 29.39 per cent in 1981 and to 29.5 per cent in 1984 at the primary level, and to 18.15 and 19.5 per cent in 1981 and 1984 respectively at the secondary level. It would be desirable that these measures should be continued as such. In respect of the stipend scheme, however, the rates may be enhanced in view of the rise in the present price index. (9.04—9.07)

5. In addition to these incentives, the Social-Welfare Department of the Punjab Government, devised some additional schemes for the Scheduled Castes to improve their general performance in the matric/higher secondary examinations. These were :

- (a) supply of text-books and stationery free of cost; and
- (b) special pre-matriculation coaching.

Both these measures were steps in the right direction. However, in our view, the scheme for pre-matriculation coaching needs some revision. The scheme was devised to improve the merit of students by giving them additional coaching for a period of about six months in a year. This scheme was well motivated conceptually but in operation it suffered from a few deficiencies. For instance, the scheme is controlled and sponsored by Social Welfare Department, but as the scheme is operated in the schools, that department is not in a position to monitor it properly, which function is very important for achieving its full objective. It can be done effectively only by the Heads of the Schools. It would be desirable therefore to transfer the scheme to the Education Department.

We also feel that the period of six months is inadequate and steps need be taken to extend it to two years of the secondary cycle. To achieve still better results, this process should be continued even during the two years of the Senior Secondary cycle. It is only through a continuous programmes of special coaching over a sufficiently long period of time that some significant improvement in merit can be achieved. (9.09—9.12)

Education
of girls.

6. The other sociologically backward group that received scant attention before independence was that of girls and women who constituted about 40 per cent of population. This was sheer neglect of human resources. Immediately after independence, therefore, the Central Government set about correcting this imbalance by giving priority to women's education in its five year plans. (9.14)

7. The Punjab Government adopted the following measures for the promotion of education among girls :

- opening of primary schools for girls in rural areas ;

- opening of JBT schools for girls to prepare women teachers in sufficient numbers for appointment in primary schools ; and
- grant of half tuition fee concession to girls at secondary level. (9.15)

8. These measures adopted by the State had substantial effect on the enrolment of girls in the age group 6—14. According to the 1971 Census the sex ratio in Punjab was 1:0.86 and the enrolment ratio between the sexes for the same year was 1:0.69 as against 1:0.26 in 1948 suggesting thereby that the gap between the enrolment of the two sexes was being gradually bridged. (9.16—9.18)

9. The situation at the secondary level is, however, slightly different, though it is much better than what it was in 1948. The enrolment ratio between the sexes at this stage is now of the order of 1:0.64 as against 1:0.08 in 1948. We shall, therefore, have to take special measures to improve the enrolment ratio of girls at this stage. (9.19—9.20)

10. Perhaps at this stage alongwith the enrolment trends it would be desirable to examine the retention ratio expected by the system. The drop out ratios between girls and boys at the primary level from Class I to V is 45.2:42.84 and at the secondary level it is 77.5:73.28, when seen in the context of enrolment from Class I to X. (9.21)

11. The gap between the retention of boys and girls in the education system has narrowed down considerably at the primary level and shows the signs of elimination during the next few years at the secondary level. We believe that a stage has come when treating the girls as a separate target group at the primary level in Punjab is no longer valid. (9.22)

12. However, we recommend that the incentives offered to them so far, which have proved so successful, should be continued in the future. In addition, to improve their participation in programmes of secondary education full fee concession should be granted to them beyond the elementary stage. (9.23)

13. Besides more attention needs to be paid to other curricular needs of girls at the elementary stage. They can be provided with a choice of subjects more suited to their pursuits. Against the scheme for gifted students a certain quota should be reserved for them for greater participation in the secondary education programmes as also for channelizing their talent. (9.24)

14. The third target group is constituted by physically and mentally handicapped children. The responsibility for the welfare and education of this category of children is with the Social Welfare Department, which assists special schools for this target group by giving financial assistance. It also

gives stipend to the needy children receiving education and training therein. The rates of stipend vary from Rs. 50 to Rs. 100 P.M., depending upon the standard of education and the means of the family. It will be desirable to extend these facilities with the help and support of the community and revise the rates of financial support given to them as these are inadequate under the prevalent conditions. (9.25—9.30)

Scheme for developing human resources of the State.

15. The development of human resources is as important for the socio-economic development of a society as its physical resources. So far the State Government has not developed any specific schemes for the development of its human resources except for the identification of the gifted and the award of scholarships to them as a recognition of their special merit. (9.32-9.33)

16. The scholarships scheme that the State Government has introduced for the encouragement of the gifted, was devised in the year 1969 and no revision has taken place since then. There is a need to provide both the number and the rate of scholarships fixed during that year. The former because the enrolment has risen considerably high and the latter because of the higher cost of living today as compared to 1969. (9.35)

17. The increase in enrolment since 1969 to its present position varies from 44.92 per cent in grade V to 90 per cent in grade X. This upward trend in enrolment warrants a raise in the number of scholarships on the basis of the Class V and VIII examinations to about 600 each, which roughly forms the same proportion to the enrolment as it was during the year 1969. The rates at which these scholarships are paid are insufficient. This amount should be revised suitably to at least Rs. 50 at the middle school level and Rs. 100 at the secondary school level. (9.36—9.38)

18. The grant of scholarships to the gifted is a step towards the recognition of their merit only, and does not help in providing special educational programmes needed for their development, which are extremely essential for the training of competent manpower. Special strategies will have to be developed in the educational system to identify the potential human resources. Its nurturing would require the following steps to be taken :

- Education of the gifted in specially identified schools;
- Extended programmes for the gifted; and
- Special coaching camps in some selected schools during vacation for the full growth and development of the potential of the gifted.

It would be desirable to educate them for three to four years continuously in specially identified schools for providing the best environment possible, where they may be given a stipend of Rs. 100 p.m. for the complete cycle of secondary education. (9.39-9.40)

19. A review of the performance of the students in Class VIII examination indicates that there are 5 to 10 per cent of the gifted with special abilities, who could benefit from extended educational programmes arranged for them. At present it may not be possible for the State to make arrangement for the education of such a large number of students, however, a beginning can be made with the top $\frac{1}{2}$ per cent. The cost estimates for implementing this scheme has been given in the Chapter. (9.41—9.44)

20. Some of the gifted students may like to continue in local schools of their own choice. Some flexibility would be desirable in this respect. But their transfer should be possible to the specially identified schools in case difficulties are experienced in arranging special facilities for them in the local schools. (9.45)

21. It will also be desirable to organise special coaching camps during summer vacations for the gifted who continue their education in the local schools. These camps will provide them an opportunity for wider interaction and are expected to be useful in exploiting their potential optimally. (9.46)

22. Similarly, there are meritorious students among the scheduled castes and other backward classes. It would be easier to remove their deprivation by giving them adequate assistance to advance educationally. It has been realised that if the meritorious students from within these classes are placed in specially selected schools during the course of two years of the secondary and another two years at the Senior Secondary stage, their performance could be considerably improved to bring them on a par with others in the main stream. (9.47)

The Gifted
amongst the
Scheduled
Castes.

23. Some quota for the education and training of the gifted from among the backward classes needs to be fixed. The available enrolment statistics reveal that if we select top $\frac{1}{2}$ per cent of them at the secondary level, we would have around 200 students who could be placed in the specially identified schools with boarding and lodging facilities. We would need to pay them Rs. 300 per month to meet their Board and Lodging expenses with Rs. 50 to Rs. 70 as a pocket allowance. This subsidy should be paid to the schools and they should be held accountable for their wards' improved merit over a period of four years. (9.48-9.49)

24. With these financial incentives and educational facilities, it should be possible for the state to turn out a pool of 1500 to 1600 talented students from the senior secondary schools every year who will form the most valuable asset of the

Nation and provide a sound base for drawing competent and trained man power to various branches of national life. (9.50)

Scheme of
Model
Schools.

25. Good schools have a notable contribution to make in the development of highly trained man power, and it would be desirable to lay emphasis on the establishment of model schools, whose main concern would be the qualitative improvement of school education. It is suggested that the State should develop 7-8 such schools in each district and this net-work of about 100 schools be gradually expanded so as to double the number in a decade. (9.51—9.53)

26. In these schools the quality of education would depend upon the teachers, the management of the class, and the total environment. The impetus for qualitative change comes from the teacher and for the model schools a special faculty with superior qualifications and professional attitudes should be recruited and given some incentives in the form of additional increments, special pay, rent free accommodation etc. Further to generate innovative practices and for the development of creativity in the pupils, the class size should not exceed 35 and some expanded and enriched programmes, with better library and laboratory facilities, should be introduced. (9.57-9.58)

Bringing
about
attitudinal
changes in
pupils.

27. These model schools should pay special attention to giving citizenship training, and for this purpose a variety of co-curricular activities will have to be organised. (9.59)

28. Some gifted students may have to stay in the boarding house and thus it would be necessary to make arrangements for 50—100 boarders in every model school. To enable the teachers to supervise the work of the pupils more effectively, residential facilities for them would need to be provided on the campus which, to begin with, may be for at least 20 per cent of the faculty, to be extended to all teachers in due course of time. (9.61)

29. The school must monitor the progress of students provide counselling services, and use alternative methods of teaching for achieving educational goals. These schools should function as nucleus schools for school complexes and learning resource centres. (9.62-9.63)

School
Complex.

30. The idea of school complex was projected by the Education Commission (1964—66), to improve the standard of education at the school level. They, anticipated that, with the expansion of the educational system, the administrative work would increase to such an extent that the functionaries will not be able to provide adequate supervision or academic leadership and to do that a system of cooperation between schools within a neighbourhood, in the form of a school complex, was the only conceivable solution. (9.64-65)

31. The present 2,446 secondary, 1,469 middle and 12,389 primary schools in the State can be integrated into 2,446 complexes so that every high school becomes a nucleus for academic interaction between 5—7 primary and at places, one middle school. The scheme can be introduced in a phased manner, covering 400—500 schools every year. (9.65)

32. To enable the schools within the complex to gain in strength the D.E.O.'s and B.P.E.Os', should delegate some of their academic responsibilities to the heads of the nucleus schools, who will exercise these with the help of a committee composed of the associated schools. This Committee will also be responsible for implementing the commonly agreed programmes. (9.67-9.68)

33. In addition to this committee, every school complex will have an advisory committee for planning the developmental programmes of the complex, to be called the complex PTA. The main responsibility and functions of the complex will be to assist the constituent schools to plan and implement educational programmes; to organise inservice education of teachers of primary schools; to share facilities among themselves; to give the benefit of practical work to the students of primary schools where the facilities do not exist; and to promote community involvement for the development of the complex as a unit. (9.69—9.71)

34. Since independence there has been a phenomenal expansion of educational facilities in our country. As education spreads and becomes more mass-based, the need for linking the school and the community directly becomes imperative. The PTA's form the most important mechanism for purposes of promoting community involvement in education and these have been constituted in all schools in the State. (9.72-9.73)

35. Each PTA has a general body and also an executive committee. It has been established beyond doubts that the involvement of the community in the educational system has not been sufficient to create any perceptible impact. (9.74-9.76)

36. In order to encourage greater participation of the community in providing good education for their children a three tier organisational structure needs to be created at the institutional level, the school complex level, and the district level. (9.77)

37. It would be desirable to reorganise the existing mechanism of PTA's to enhance their influence for increasing the efficiency of the educational system. This could be achieved by reorganising the present structure of the PTA's and restricting their membership only to those who have some commitment to the development of the system, i.e. they are either parents or teachers. (9.78)

38. To secure community involvement it would be necessary to associate them with the planning and supervision of the education of their children. This would enthuse the community and revitalize the PTA's. (9.79)

School
Complex
Level PTA's.

39. The second tier of the PTA's will be at the school complex level. The school complex should be treated as one unit and its planning and monitoring should be under the unified control of the PTA at the complex level. The main functions of the school complex level PTA would be to help the constituent schools in the formulation of institutional plans and their monitoring, as also to help Balwaries, Anganwaries, primary schools, non-formal education centres, and adult education centres within its catchment area in establishing linkages and providing locally available resources. (9.81—9.83)

40. The D.E.O.'s and S.D.E.O.'s should provide the necessary guidance and support to the school complex P.T.A.'s from time to time. (9.84)

District
Level PTA's.

41. The third tier would be constituted by setting up a district advisory committee, and its functions would be the monitoring, coordination and evaluation of the institutional plans developed by each school within the district; forging linkages and utilizing the support of other government departments and non-government agencies for educational development; and identifying the weak schools and monitoring their progress by paying special attention to them and adopting them as special schools for support. Such an experiment has been tried in Maharashtra with some success and we should take advantage of their experience. (9.85)

42. Through the proposed three tier organisational structure of the P.T.A.'s, it should be possible to make a beginning for the development of education through a joint venture between the community and the State. (9.88)

22234 DSC—Govt. Press, U.T., Chd.

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BCC. No. 3910
Date 13/8/87

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