CHAPTER V

ANALYSIS AND INTERPRETATION

This Chapter embodies the analysis and interpretation of data collected as described in the earlier chapter to meet the objectives of the present study. This is presented as follows:

Need for the Four Year Integrated Teacher Education Programme:

The programme was sponsored by the CentralMinistry of Education aimed at improvement of the quality of secondary education. The programme was based recognition of the widening variety of needs,abilities and aptitudes, which the secondary schools provided for as secondary school enrolment increased rapidly,doubling every eight years. The Secondary Education Commission, in 1953, identified the inadequacies of the then existing system of secondary education as follows:

"This (secondary) education was too bookish and mechanical....and did not cater to the different aptitudes of the pupils or to the pupil's different aptitudes...The unilateral scheme of studies which concentrated almost entirely on preparing students for entrance to the university was not calculated to bring out the best either in the teacher or the pupil...again, expansion would demand. But the greater difficulty in the short supply of qualified and trained science teachers".

Even in the schools that provided science, the standard of instruction and pupil attainment was far from satsfactory. mainly because many of them wereeither understaffed or staffed by inadequately trained teachers. Techniques of teaching science and the science curriculum itself had undergone major changes in recent years, but teacher training methods lagged heavily behind the times.The content as well as the methodology of science teaching thus, remained out of date. The science teacher was therefore unable to exert leadership that he was expected to provide. He did not keep up-to-date with significant developments in the subject and as a consequence, failed to bring to the attention of his pupils' scientific knowledge of vital, social and economic significance.While larger funds enable one to build new laboratories and to procure more equipments, the preparation of a good science teacher was very much slower, longer and more arduous process

It called for long term planning and preparation. The most promising way to improve scince and vitalise the instruction in secondary school were to improve the preparation and thereby the quality of the science teacher. No effer investment in this effort should be great. The entire superstructure of scientific advance which people wish to build in susequent plans rested upon the foundation we lay today forg good science instruction thrugh sound teacher preparation.

The aim of the multipurpose secondary school was to provide diversified programme to cater to varying interests, aptitudes and talents represented in the increasing proportion of the population who were entering the secondary schools, and to link education at the secondary stage to theneeds of the country.

By the end of the Second Five Year Plan (1961-62) about 2000 of the secondary schools were converted to multipurpose in design. Of this number, only a small fraction offered more than three of the seven diversified courses which had been recommonded for these schools.

Rationale of Four Year Programme in Teacher Education

Several measures had been taken to strengthen science teaching especially at the crucial stage of secondary education. Science had been introduced as a part of the core curriculum so that every secondary school pupil would be able to gain a basic knowledge and understanding of the fundamental principles of scientific phenomena in the midst of which he lives. In addition, provisions had been made for teaching science of an advanced standard for those who have a special aptitude for and a desire to persue deeper studies in the subject. In view of the growing importance of science in developing industrial economy of the country and potential for lurcative employment which it holds, the popular demand for science courses in secondary schools was outpacing the State's capacity to meet it. This was partly due lack of sufficient funds to meet the cost of labs and equipment whuch such

expansion would demand. But the greater difficulty lies in the short supply of qualified and trained science teachers.

Even in the schools that provide science, the standard of instruction and pupil attainment is far from satisfactory, mainly because many of them are either understaffed or staffed by inadequately trained teachers. Techniques of teaching science and the science curriculum itself have undergone major changes in recent years, but teacher training methods lag heavily behind the times. The content as well as the methodology of science teaching thus, remain out of date. The science teacher is therefore unable to exert the leadership that he is expected to provide. He does not keep up-to-date with significant developments in the subject and as a consequence, fails to bring to the attention of his pupils scientific knowledge of vital, social and economic significance. While larger funds may enable one to build new laboratories and to procure more equipment, the preparation of a good science teacher is a very much slower, longer and more arduous process. It calls for long term planning and preparation. The most promising way to improve science and vitalise the instruction in the secondary school is to improve the preparation and thereby the quality of the science teacher. No investment in this effort should be too great. The entire superstructure of scientific advance which we wish to build in subsequent plans rests upon the foundation we lay today for good science instruction through sound teacher preparation.

Although the concept of the multipurpose school was readily accepted and the scheme expanded rapidly, certain difficulties came in the way of the concept being fully realised in the actual organisation and practices of the schools. A study made by the Ministry of Education in 1958, and a subsequent study made by the Ohio State University Team in India in 1959, revealed that the development of multipurpose education on proper lines required:

1. a clear understanding and agreement about the purpose and functions of multipurpose schools and the objectives which the practical courses are to serve;
2. the supply of qualified and trained teachers, especially in the practical courses, and provision for pre-service training;
3. provision of instructional materials especially text-books and hand-books;
4. increase in the range of elective courses;
5. provision of facilities of educational and vocational guidance;
6. training and supply of teachers for industrial crafts.

The growing demand for science education could not be adequately met, partly because of the lack of adequately trained and qualified science teachers and partly because of the lack of knowledge of techniques of teaching general science courses.

The Planning Commission, therefore proposed that during the Third Plan attention should be concentrated on consolidation of the multipurpose scheme by strengthening the institutions already established.

The Commission also suggested that an integrated teacher training programme for the multipurpose schools should be undertaken in four regional training colleges which would prepare teachers for the multipurpose schools through in-service and pre-service training programme both in the practical and in the scientific subjects.

Establishment of Four Year Teacher Education Programme:

After a lot of deliberation in different fora like All India Association of Training Colleges (AIATC), Ministry of Education, Central Advisor Board of Education (CABE and National Council of Educational Research and Training (NCERT), a few attempts were made on experimental basis to establish the integrated teacher education programmes in the following centres:

1. At College of Education, Kurukshetra under Kurukshetra University, Haryana in the year 1960.

2. At the Rural Institute of Education, Vallabh Vidyanagar under Sardar Patel University, Gujarat.

3. NCERT established four Regional Colleges of Education (RCE) at Ajmer, Bhopal, Bhubaneshwar and Mysore under

University of Rajasthan (Jaipur), Vikram University (Ujjain), Utkal University (Bhubaneshwar) and University of Mysore (Mysore) respectively.

Regional college of education, Bhopal started in the academic year 1964-65 whereas, other three RCEs were set up by NCERT in 1963-64.

Courses offered in the Integrated Approach in Teacher Education:

College of Education, Kurukshetra offered courses viz. B.A.(Education) and B.Sc. (Education) - Four Year Integrated Courses after Matriculation or High school Leaving Certificate Examination. Rural Institute of Education, Vallabh Vidyanagar had a four year integrated course to prepare teachers for secondary schools of Gujarat.

Regional Colleges of Education offered four year integrated courses in Science, Technology, Commerce, Agriculture and Arts leading to B.A., B.Ed; B.Sc., B.Ed; B.Tech., B.Ed; and B.Sc.(Agr), B.Ed. Over and above the Regional Colleges of Education had one year B.Ed. courses in Science, Arts, Commerce, Agriculture and Fine Arts.

Discontinuation of Four Year Teacher Education Programme:

One of the major objectives of the present study is to investigate the reason for such a closure of the integrated teacher education programmes in different centres in India. Reasons being unequal the researcher has tried to investigate the causes for

discontinuance of these courses at College of Education at Kurukshetra, Rural Institute of Education at Vallabh Vidyanagar, and those at the Regional Colleges of Education seperately. But the integrated courses in all these places were subjected to serious criticims after the submission of the Report of the Secondary Education Commission (1964-66). The Commission recommended:

" An alternative way to link the study of subject with professional preparation at the level of secondary teachers is to provide concurrent and integrated courses in general and professional education, on the pattern of teacher education in the U.S.A. Courses of this type have been introduced in a few selected subjects in the Kurukshetra University in Punjab, in the Regional Colleges of Education and in one Rural institute. In the Kurukshetra experiement, the total period of education has been reduced by one year, and the B.Ed. degree can be obtained in four years after the S.S.L.C. on the Matriculation examination".

The utility and feasibility of these integrated courses were widely questioned. It has been argued that this experiment had not, and would not succeed in India since a young student, about 16 or 17 years old, who just complets secondary education cannot ordinarily decide to be a school teacher. It was also contended that there was no evidence to show that the products of these integrated courses were better in any way than teachers who had just first taken their degree and then completed their professional education; and that the dwindling enrolements in such courses,

(except where substantial stipends are provided) showed that the experiment had no promising future. Although to all the objections raised, it was obvious that these integrated courses, even when developed to their fullest potential, could only provide a very small proportion of the total number of trained teachers required at the secondary stage (estimates vary from 5 to 10 percent) on account of the heavy expenditure involved therein. People argued that it would be wrong to place an undue emphasis on such marginal experiments and that, from the point of view of raising standards in teacher education, it would be better to concentrate on improving the professional one year course following the first on the second degree.

The Commission Further Recommended:

"If such integrated courses are to be organised at all and we do believe that they have a place in the elastic and varied system we are recommending - they should be organized in universities rather than in seperate institutions set up for the purpose as is now being done in the Regional Colleges of Education. Such Colleges necessarily prove to be expensive as regards staffing and equipment. High quality staff do not join such institutions readily as adequate facilities to pursue studies in their special academic field or for undertaking research do not exist. While existing colleges may continue such institutions should not be expanded. The experiment should be tried, as we have recommended, in Universities having strong departments or schools of education which should work in collaboration with departments in other subjects".

1. At College of Education, Kurukshetra:

The four year integrated teacher education programme in college of Education at Kurukshetra was subjected to criticism from the very beginning. Critics expressed their view that the trainees were not as good as the ordinary trained graduates. Few were critical about the duration of the course as they observed that five years' work could not be satisfactorily done in four years.

To meet the first criticism, the then Punjab Government, sometime in 1964, appointed a committee of experts under the Chairmanship of Dr.A.C.DevaGowde, the then Director of NCERT (erstwhile DEPSE). The purpose of this committee was to compare the performance of the two sets of trainees i.e. from the college of education, Kurukshetra and the ordinary training colleges at Patiala, Jalandhar and Chandigarh. The ten best students were drawn for the comparison in their performance in theory papers and practical skills in teaching. It was observed that the Kurukshetra College of Education students did much better both in written papers as well as practical skills in teaching than the candidates from Patiala, Jalandhar and Chandigarh. The University Grants Commission Visiting Committee under the chairmanship of late Shri K.G.Saiydian, then educational advisor to Government of India also reviewed the working of the four year integrated course in July, 1968. The Committee was of the opinion that the students of the four year integrated course were satisfied with the course and that they were better motivated which resulted in their

faster and better achievement than those of the comparable groups in the University. The University Grants Commission Committee even recommended that this scheme of teacher preparation be thrown open to other students of the University.

This study compared the academic performance of the four years integrated course students with ordinary arts/science graduates of the University of Kurukshetra. Also the performance of these trainees in professional subjects as well as in practice teaching were compared with the performance in these areas as shown by the ordinary B.Ed. student who joined the College of Education in the one year B.Ed. course after obtaining the graduate degrees (which course was also started in 1967 for comparison). The study also was made of the interest and motives in the profession of teaching in the case of two sets of trainees.

From the 1966 session the academic courses of study of the four years integrated course were made the same as for B.A./B.Sc. degrees of the Kurukshetra University and the teacher education degree was called B.A./B.Sc., B.Ed. instead of B.A./B.Sc.(education). The results in various academic subjects for 1967 and 1968, of students in the professional course in the college of education and of students in the ordinary degree courses in this university were compared by obtaining the scores from the university examination branch.

From the scores about the achievement in academic subjects both for Arts and Sciences, it was clear that students who followed

the four years integrated course leading to the B.A./B.Sc., B.Ed. degree, did on the whole, not only equivalent but somewhat better than the students who did their ordinary B.A./B.Sc., when the academic course contents in both the cases were exactly the same. Thus, it was proved that academically speaking the students who followed the four years integrated course were not only equal to ordinary degree holders but in most of the subjects they were found to be superior.

A comparison was also made in the professional achievement of those trainees who went for the four years concurrent or integrated course and those who followed the one year successive course for teacher training after a degree.

The trainees through the concurrent system are professionally speaking better equipped than the trainees through the successive method of teacher preparation, although being maturer in age and having better expression in English (which was the medium of examination) due to more academic qualification they could write better English and thus scored a little higher in theoretical subjects like principles of education and educational psychology. In other professional subjects like methods of teaching in general as well as in specific methods of teaching school subjects and also in craft and practical skill in teaching, the trainees of the concurrent group consistently did better in all the years. This, therefore, leaves no doubt that the professional preparation of the trainees through the concurrent system is not only equal but even somewhat better than that of the

trainees following the successive method of teacher preparation.

To compare the interest of the two sets of teacher trainees as a part of the study under reference a comprehensive interest inventory was designed with 25 major questions convering the field of education in school. These questions or items referred to the broad categories such as -

a. ability to deal with class-room problems,
b. objectives of teaching or education,
c. making lessons interesting,
d. extra-curricular activities,
e. love for children,
f. leisure time activities of teachers,
g. professional growth of teachers,
h. physical requirements of good teaching,
j. sincerity and sense of responsibility in the teacher.

It was interesting to note, as made out from the published research study, that in the academic field in almost all the areas in arts/science subjects, the trainees who followed the four year integrated course did better than the ordinary graduates of the University in the same arts/science subjects when the courses were identical. In the essentially professional subjects as well as in practical skill the trainees of the four years integrated course did, on the whole, better than the ordinary B.Ed. who joined the one year B.Ed. course after obtaining the first, degree. The trainees of the four years integrated course

showed better interest in teaching as a profession and chose it as their career not for financial reasons but more for social service, national development and such like aims or motives rather only for finding it as a means of livelihood.

In any case, criticism against this scheme had been from the beginning, although there did not seem to be any valid grounds. On the other hand, it may be said that the scheme gave good dividends in the form of better prepared teachers who were welcome in the schools wherever they went and were much sought after.

When a reference was made to the Inter-University Board regarding the recognition of the B.A./B.Sc., B.Ed. degree of this course on an all India basis as equal to B.Ed. it did not get an encouraging response and the university in the meeting of the Inter-University Board at Madurai in 1968 had to withdraw the item of recognition of this B.A./B.Sc. B.Ed degree course from the Inter-University Board and to take up the matter with the individual universities on reciprocal basis in the equivalence Committee. About thirteen universities had recognized this degree equal to ordinary B.Ed. degree earlier and quite a number recognized it equal to their B.Ed. degrees later. But for reasons best known to them, the Haryana Government stopped admission in this course from 1969 session.

But the university felt the need to review the whole scheme and the academic council resolved to set up a broad-based

Committee of experts to go into this question and make its recommendations. The Vice-Chancellar in 1970 set up the committee under the Chairmanship of late Dr.A.C.Joshi who unfortunately could preside only over the first meeting before his untimely death. Sh.J.P.Naik was appointed as Chairman in place of the late Dr.A.C.Joshi.

The whole scheme with regard to its duration, course contents, evaluation or the scheme of examination had been reviewed so that the candidates who joined this course did not suffer from any handicaps in their career as teachers or for higher studies. Unfortunately, we in this country live in an environment where any new idea or deviation from the beaten track, even if useful and effective, is considered suspect. We have to fall in line with the thinking of the wide world outside. There is no doubt that, as already mentioned, in many countries, big and small, the schemes of teacher preparation are of the integrated type where academic and professional training are done simultaneously, as to seperate the academic from the professional is considered unnatural, keeping this in mind the Committee recommended that:

a. In order to meet the criticism often levelled against the Kurukshetra scheme and to avoid any difficulty of any sort to the trainees in their career, the four years integrated course could be organized as a five years integrated course of matriculate students with atleast 55 percent marks by admitting them in the first year

or of four years for higher secondary pre-university pass candidates with atleast 55 percent marks by admitting them in II year and to make them follow the academic courses of the B.A./B.Sc.standard on the academic side and B.Ed. courses on the professional side.

b. During these five years, the professional courses could start in the third year and followed through the fourth and fifth year. The examinations in some of the papers could be held in the fourth year and in other papers in the fifth year, as was done earlier in the third and fourth year.

The actual details of the spread and staggering of the courses could be taken up, later, by the Board of studies in Education and recommend to the Academic Council

c. In the professional courses there could be an additional paper on "Modern Problem of Education in India," since the time in the five years scheme will be more and since the earlier professional courses were somewhat less than what is prevalent in neighbouring universities, although the professional courses followed so far were quite enough for giving the would be teachers essential concepts, ideas and skills for becoming effective teachers.

d. To provide some incentives to attract some good students, it was recommended that stipends of Rs.50/- p.m. be given to all the trainees, if finance permit, otherwise to

atleast 50 percent (as earlier) on merit. The possibility of giving loan scholarships, to the trainees should also be explored.

e. The staff of the university departments be involved in teaching the academic subjects as far as possible, as there may be some administrative and practical difficulties.

These recommendations had been sent to the vice-chanelllar and it was hoped that the state Government when approached by the university in an effective manner would accept this scheme of teacher preparation in its modified form. But, there is no move yet to revive it.

New innovations are not easily accepted as there is lot of inertia and man by nature is conservative to follow the beaten track than seek new avenues for betterment. Even the Kothari Commission did not find unqualified support to this programme of teacher preparation as they (before the study reported here was published) had observed "There is no evidence to show that the products of these integrated courses are better in any way than teachers who have first taken their degree and then completed their professional education". The Commission had, therefore, recommended that, "while the existing colleges may continue, such institutions should not be expanded". Moreover, the scheme at Kurukshetra was considered inadequate as, "the total period of education

has been reduced by one year i.e. the B.A./B.Sc., B.Ed. degree is obtained in four years instead of five". But in the light of what has been said above it could be seen how wrong this observation was, as it was without any basis.

The study group on the Education of Secondary School Teachers in India, which met in Baroda at the time of the All India Conference on Teacher Education in March, 1964, observed that the present duration as well as pattern of teacher education were not capable of accomplishing qualitative improvement in the field. The study group recommended, inter-alia, that a four year degree programme for teacher education may be set up in a phased manner which may include the study of subject matter as well as professional preparation.

The All India Association of Teachers' Colleges at its Seventh Conference held at Mysore in June, 1964, recommended the starting of four year training colleges or colleges of education. It set up a working group in Collaboration with the NCERT which consisted of eminent teacher educators under the chairmanship of Sh.A.C.Deva Gowda, the then Director of DEPSE (now NCERT); other members were Dr.J.P.Leonard (U.S.A., visiting professor), Dr. Chaurasia, Prof. J.K. Shukla, Prof. P.K.Roy, Dr. R.H.Bave, Prof. V.S.Mathur. This working group held three meetings during April, 1965, and crystalised proposal for the establishment of integrated programmes for teacher education.

The essential arguments and the scheme of better teacher education suggested was the same as made out in these pages that for proper insight, maturity, skill, attitude and the development of interest in teaching, the trainee needed time and cannot be hustled in a crowded programme of the short duration as at present. The programme has to be of the integrated nature for a period of five years after matric or of four years after higher secondary or pre-university.

Though the Kurukshetra experiment was atopped but the four Regional Colleges of Education run by the NCERT have been continuing and a number of review committees hade been set up from time to time. The colleges are continuing with the programme and it is hoped this pattern will prevail.

2. At Rural Institute - Vallabh Vidyanagar:

At the instances of the recommendations of secondary education commission (1964-66) for immediate discontinuation of integrated teacher education courses at different centres, Govt. of Gujarat discontinued the grants for the Rural Institute of Education for this experimentation. As such the integrated had to come to a closure in due course of time in late sixties.

3. Temporary Closure and subsequent Reopening of Integrated Teacher Education Programme in Regional Colleges of Education.

Government of India and NCERT set up different Review

Committees in regular interval to review the work of the NCERT and Regional Colleges of Education and to suggest measures for improvement. These were -

1. Nag Choudhary Committee (1968)
2. Mathur Committee (1970)
3. Kapur Committee (1974)
4. Administrative staff College of India (ASCI) 1978.
5. Sabanayagam Committee (1979)
6. Kulkarni-Bose Committee (1980)
7. Committee on Task Force on NCERT (1985) (known as Madhuri Shah Committee).

Nag Choudhari Committee was in favour of total closure of four year integrated courses in Regional Colleges of Education as recommended by the secondary education commission (1964-66). As such the Four Year Technology Programme was discontinued in RCEs in 1970. Regarding courses in science, Dr.B.D.Nag Choundary chairing another committee was to examine once again and the Committee recommended that merit-cum-means test for the candidates was to be given to reduce the cost. It suggested that the students of the four year science could get purely B.Sc. after three years and may not go for pedagogical studies in the fourth year.

In a similar manner, the M.V.Mathur Committee in 1970 suggested that the four year course in Hindi and English could concentrate more on language than no literature and students could opt for B.A. degree after three years of study and need not go for

pedogogical study in the fourth year. However, in order to be sure of the position in May, 1974, the NCERT appointed Mathur Committee to evaluate and review the one year and four year education courses running at the four Regional Colleges of Education under the Chairmanship of Dr.J.N.Kapur (Senior Professor of Mathematics, I.I.T., Kanpur).

The Committee compared the students of both the courses in terms of :

i. knowledge of content;
ii. class teaching;
iii. co-curricular activities; and
iv. professional studies.

This revealed that the four year course was considered superior to that of one year course, with respect to content and professional attitudes. Most of the heads of schools favoured four year course over the traditional one year course.

Hence, the Committee recommended:

a. Over and above the four year courses in science and languages, atleast, in one college four year course in social sciences may be tried out.

b. The academic idea of a four year integrated teacher education programme was successful and it should be extended to other colleges of education. NCERT should

encourage other colleges in the country to introduce four year integrated courses.

It further considered that the four year course was capable of strengthening the teacher education programme in the following respects:

a. Adequate attention to pedagogical component
b. planned emphasis on integration between education and science of language.
c. Longer duration of internship with better and advance preparation at the college and demonstration school.
d. periodic assignment and a system of internal assessment.
e. more dialogue between staff and students in discussion, tutorials and activities.
f. stress on formation of proper attitudes.
g. adjustment of the course to prevailing and developing needs of the schools.

ASCI (1978) had recommended that pre-service training programme should be discontinued. The Task Force on NCERT (1985) wrote. "We support this view to a limited extent. We feel that only innovative programme should continue and they should be evaluated for wider adoption after adequate trial. This Task Force endorsed the Nag Chaudhary recommendation that RCEs should emphasise in-service and extension programmes.

Nag Choudhary Committee had recommended that four year integrated teacher education programme should altogether be discontinued. There had been subsequent indepth examinations of the merit and logic of these courses by Kapur Committee (1974) and Kulkarni-Bose Committee (1980). While Nag Choudhary Committee and ASCI were quite antagonistic towards the four year integrated courses, the Kapur Committee and Kulkarni Committee were advocating for integrated teacher education programme. Task Force Committee (1985) stated "We would only wish to emphasise that the four year courses also must stand on the same footing as other innovative programmes, namely, they should be evaluated in due course for wider adoption".

It is quite apparent from the reports of different committees set up for NCERT and RCEs that a state of flux was continuing till 1985 regarding continuation of four year teacher education programme in four Regional Colleges of education. Infact with the recommendation of Nag Choudhary Committee and review by ASCI, RCEs discontinued admission to the four year courses in different disciplines. From the academic year 1975-76. But after a long discussion at the various levels in NCERT and ministry of education and social welfare, Government of India and on the recommendations of Kapur Committee (1974) and Kulkarni-Bose Committee (1980), the four year integrated courses in RCEs was restarted from 1980 and are still continuing.

Initial Objectives of Regional Colleges of Education and Their Present Status:

The next purpose of this study was to investigate whether or not the initial objectives of the Regional colleges of Education were diluted or sacrificed during the passage of time.

The Regional Colleges of Education had been broadly concieved for preservice and inservice educational workers, research activities, preparation of instructional materials and other educational services were planned as integral phases of the total programme of these colleges. Also, the colleges were residential institutions so that attention might be given to all aspects of development of the student - curricular and co-curricular. The emphasis on non-academic activities was designed to promote student's health, citizenship and creative interests and abilities.

The Objectives of the Regional colleges of Education

The major objectives of the Regional Colleges of Education as described in plan and programme (1963) were:

1. To develop and provide a programme of teacher education for the multipurpose schools and to prepare teachers of technical subjects, science, crafts, agriculture,commerce homescience and fine arts.

2. To provide inservice courses for the existing teachers of the practical subjects in multipurpose schools.

3. To provide inservice programmes and field services for the teachers, supervisors and administrators concerned with the multipurpose schools in the region in which it is located.

4. To organize and develop a model demonstration multipurpose school.

5. To function as a Regional Centre for programmes of service education and field services for secondary schools in general.

6. To undertake pilot studies and research projects in the methods of teaching, in relation to the multipurpose schools as well as the general secondary school.

7. To evolve and try-out improved patterns of teacher education.

8. To prepare and disseminate instructional materials for secondary schools in general and multipurpose schools in particular.

9. To collaborate with other institutions in initiating and promoting improved methods and practices, to function as a clearing house in this regard and generally to provide leadership.

The performance of the colleges in attaining these objectives should be the measure of their success.

These objectives have never been diluted or sacrificed during these thirty years of existence as it is revealed from reports of different committees set up by NCERT and Ministry of Education. It can be easily found out from the latest Report of Task Force on NCERT (1985). The Committee reported regarding the functions of Regional Colleges of Education as follows:

1. Given the premise that NCERT's programming would have to reflect in a substantial way the State requirements, it would be necessary to strengthen the Regional Colleges of Education and to redefine their roles and structure. They should be regarded as a vital link in a chain. In this context, and this we have stressed earlier, the Regional Colleges would have to shed many of the traditional training functions. While continuing with innovative training programmes, atleast till their large-scale multiplication is taken over by appropriate organisations at the State level, the colleges will have to give prominence to their role of assisting and advising States in policy formulation and programme development and implementation. In our view, they should be developed as major regional centres of education.

   In our view, the number of Regional Colleges is insufficient to meet the needs of the States effectively. Given the size of the educational systems that the states support, we recommend that at least two more such institutions be established. While it would be for the

Government to decide upon the location of new centres, we would like to strongly recommend that one such centre be established to cater to the educational needs of the north-eastern region. This is important because the States and Union Territories of this region lack infrastructure and expertise to undertake educational development and transformation which is urgently needed.

2. A regrouping of the States/Union Territories in relation to the jurisdiction of the Regional Centres should be undertaken. We visualise the following regrouping of the States:

(a) Regional Centre (Northern Zone)

i. Jammu and Kashmir
ii. Punjab
iii. Haryana
iv. Himachal Pradesh
v. Chandigarh
vi. Delhi

(b) Regional Centre (North-Eastern Zone)

vii. Meghalaya
viii. Nagaland
ix. Mizoram
x. Tripura
xi. Manipur
xii. Arunachal Pradesh
xiii. Sikkim

(c) Regional Centre (Eastern Zone)

xiv. Orissa
xv. West Bengal

xvi. Andaman and Nicobar Islands

xvii. Assam

(d) Regional Centre (Western Zone)

xviii. Rajasthan

xix. Maharashtra

xx. Gujarat

xxi. Goa, Daman and Diu

xxii. Dadra and Nagar Haveli

(e) Regional Centre (Southern Zone)

xxiii. Andhra Pradesh
xxiv. Tamil Nadu
xxv. Karnataka
xxvi. Kerala
xxvii. Pondicherry
xxviii. Lakshadweep

(f) Regional Centre (Central Zone)

xxix. Bihar
xxx. Madhya Pradesh
xxxi. Uttar Pradesh

3. As regional centres, they will be concerned with a number of functions: illustratively these functions would include:

a. policy studies in relation to the conditions obtaining in the States.

b. advise/assist the States in formulation of policies/ programmes.

c. support and monitor the implementation of nationally accepted policies and programmes.

d. sponsor research which helps in identifying and solving educational problems of the States.

e. in-service training to meet the specific requirements of State, particularly for teacher educators of elementary teacher training institutions by employing, if necessary, course personnel from the region to overcome language difficulties

f. collaboration with State-level institutions for educational development of States

g. innovative programmes in pre-service training and in emerging area like software development for radio/ television transmission, education of the disabled, etc. etc.

h. consultancy/services to State level institutions

i. documentation and dissemination of educational information

j. interaction with university education departments.

Considering the priority attached and required to be given to it, universalisation of elementary education should provide the major focus for the activities of the regional centres.

Broadly speaking, the functions visuallised for the regional centres fall into two categories:

a. research and training

b. development and extension

In the former category will fall activities which lead to award of degrees; the latter will included functions which are

of direct relevance to educational needs of the region. In all its activities, the regional centre should get feedback from field offices. We have visualised for NCERT a statutory status and degree-giving powers. If this development takes place, regional centre will be able to organise pre-service training and introduce research programmes leading to degrees which will be awarded by NCERT. With NCERT having a deemed university status, the regional centres will be its regional compuses.

4. Each regional centre should have two main committees, viz. the Academic Council which will be concerned with the pre-service training and research programmes and the Programme Advisory Committee which will deal with those activities which are of immediate relevance to the State-curriculum development, in-service training, Performance evaluation and so on. Representation on these committees should be from RCE, State-level institutions. State Departments and Directorates of Education, universities of the region, field offices and NIE departments. There should be periodic shifting of the faculty resources, from one division to the other. This interchange will be helpful in providing, on the one hand, academic and research support to States' educational development and on the other, help in identifying field problems for investigation and programme development. The coordination between the two committees should be ensured. The Head of the regional centre,

who would be the chairman of both these committees, would be able to effect this. The proposals approved by the two committees of the regional centre should be reported to the Programme Advisory Committee of NCERT so as to ensure that a broadly common frame work governs all the activities that NCERT undertake as a whole.

5. The expanded role of the regional centre would require that it be headed by an academically competent professional. With a view to ensuring that she/he is able to provide the necessary leadership and command respect of the staff, it is recommended that the head be given a status above that of the Professor. This could be achieved, among other things, by giving him/her a salary scale above that of the Professor.

6. It is visualised that the work of the Field Advisers located in region will be coordinated by the regional centre. In order to provide for a permanent machanism for coordinating activities of the field offices and receiving feedback on the programmes/activities that the centre organises, each centre should have a field coordination unit.

Attempt of Integration in Four Year Integrated Teacher Education Programme in Regional Colleges:

One of the major objectives of this study aimed at to

investigate the attempts made for integration in the four year integrated teacher education programme practiced in the Regional Colleges of Education. In order to study the integration in the four year courses available in the Regional Colleges of Education. The researcher has taken the four year teacher education programme in science into consideration. The content of the four year integrated science education programme was subjected to analysis in order to find out the order of arrangement of the courses so that an integration was established amongst the different components of the course.

As such researcher selected the original courses of studies prepared by the working group on courses of study in science Education in the Regional Colleges of Education (1962) and plan and programme (1963) which envisaged the original attempts made in order to establish the integration. The four year integrated course in science was analysed and different components were taken into consideration.

Underlying Assumptions of Four year courses

With the introduction of general science in secondary schools as a core subject and the growing demand for elective science in secondary schools, the need for trained science teachers became exceedingly acute. In the prevailing social set up in the country, the teaching profession did not always draw the best science graduates in adequate number nor were those who sought the profession of the best competence. Science instruction in

secondary schools had, therefore, suffered for the lack of sufficiently devoted and competent teachers. Steps were taken to increase the output of science graduates at the University level, but this did not ensure that the larger number produce would necessarily augment the teacher supply in the schools. A solution to this problem would be to select the secondary school-levels who have aptitude for science and give them financial assistance in the form of scholarships to enable them to pursue an integrated course of content and pedagogy aimed to give them competence of a trained graduate science teacher. Such a course had the following advantages:

1. It would have chosen the best material available from among the secondary school leavers.

2. Students who enter this course would be preparing themselves for the teaching profession right from the start.

3. Being an integrated course of content and pedagogy, it would be possible to achieve a high degree of coordination between the two, and at the same time maintain a standard of education equal to the existing B.Sc. and B.Ed.degrees.

In formulating the integrated programme in science, the Working Group on course of study in science education in the Regional Colleges of Education (1962) had considered the conditions of science teaching that obtained in secondary schools those days the demand and supply of science teachers from the quantitative

and the qualitative points of view, and the functions of the science teacher in the secondary school. The following major considerations has guided the Working Groups in drawing up the scheme of courses for the integrated programme.

1. Depth of Subject Knowledge:

A science teacher in the secondary school was ordinarily expected to handle Physics and Chemistry or Biology according to the subject of his specialisation and in addition he was also required to teach general science which is a core subject in most secondary schools. Generally, a science teacher who had specialised either in Physics and Chemistry or in Botany and Zoology was not able to do justice to the subject of general science, which was an integrated course of all the sciences. Therefore, a teacher who was to fit into the secondary school science programme effectively had to have adequate depth in a variety of areas so that he can teach -

a. Physical or Biological Sciences to high school classes
b. General Science course at all elvels.

The integrated course, therefore, should include -

a. the Physical Sciences, or
b. the Biological Sciences as major subjects
c. a supporting subject as a minor and
d. an ancillary subject, to make a balanced course.

This will gave the student a fuller and wider spectrum of scientific knowledge. For example, the physical science student will acquire competence in mathematics equivalent to the Intermediate level and will undergo supporting courses in Biological Sciences. Similarly a student of Biological Sciences had to undergo a supporting course in Physical Sciences, and would also have to acquire a general competency in elementary mathematics as well as in physiology and hygiene.

2. Unified Approaches to Science:

Since the emphasis on the entire programme is on giving the science teacher an integrated approach to science teaching, the course had been so constructed that the student first received fundamental knowledge through an unified course such as physical science as distinct from Botany and Zoology. Further specialisation had been built upon this foundation.

3. Place of Liberal Arts:

For a successful science teacher, it was equally essential that his total education included the necessary degree of liberal arts education, so that his scientific knowledge was well balanced with cultural studies to enable him to function as a full citizen and also to interpret to his pupil the social and economic impact of scientific knowledge on society. It was considered that the liberal arts courses in this integrated programmeshould include the following:

English:

A basic course in English was necessary to help the student to derive full advantage from the large amount of scientific literature available in this important language. It had the additional advantage of helping him to follow his studies with profit, since the medium of instruction in the Regional Colleges was English in the initial stages until more colleges were established where it may be feasible to adopt one language of the region as the medium of instruction. The purpose of the course had been to give the student ability to use the language as a vehicle of communication of scientific ideas. The terminology developed by the Central Institute of English, Hyderabad, for science students in the P.U.C. may be fully utilized during the first three months of the course. Tutorial classes may also be provided in the first 2-3 months to prepare the student adequately to receive instruction in science.

Regional Language:

Since the students passing out of these colleges will have to teach in their respective states through the medium of the regional language and since scientific terminology played an important role in science instruction at all levels, it was necessary that students passing out of the integrated course should have a sufficient command of the regional languages and particularly so of the scientific terminology. Provision should, therefore, have to be made for giving an adequate degree of proficiency in regional language with a special emphasis on technical terminology in the

language concerned.

Social Sciences:

The impact of science on social and economic life made it necessary for the science teacher to have an adequate awareness of at least some of the major social, political and economic changes that had taken place in India and abroad; an awareness of contemporary social problems was also indispensable to every teacher.

The scheme of social sciences was so organised through the course to stimulate an awareness of the important movements, thoughts and value-systems which have shaped and were shaping our socio-economic political and cultural institutions. The structure of the course should bring out historical and social continuities rather than emphasise, merely of factual information. This course also include course in general psychology which should give him the fundamentals of psychological principles and serve as a foundation for his future study of educational psychology.

Arts and Crafts:

The course in Arts and Crafts was recommended not only to serve as a cultural activity but also to enhance the capability of the student in handling extra-curricular activities and to prepare class room and demonstration material.

DISTRIBUTION OF COURSES
(ON PERCENTAGE WISE)

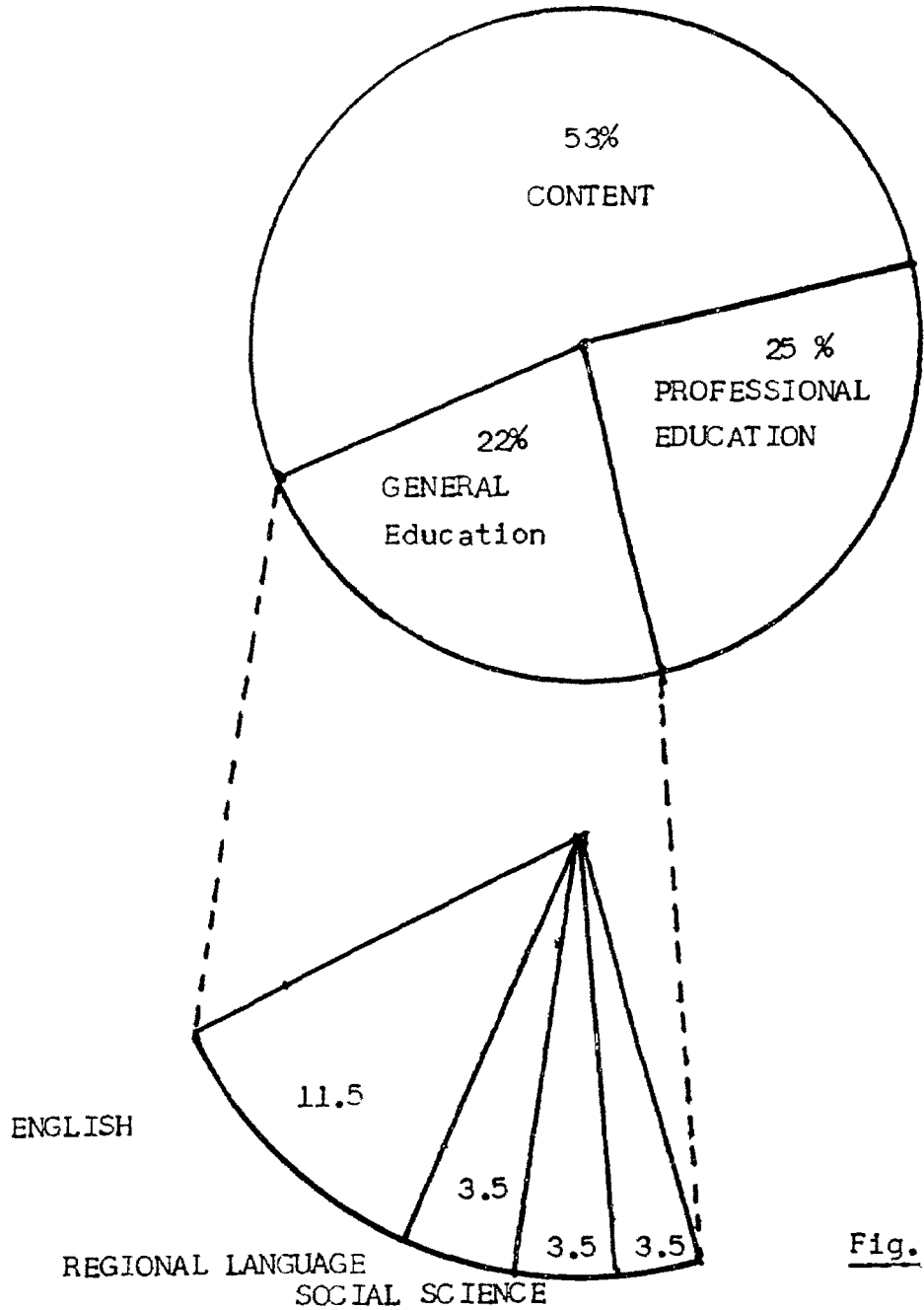

Fig. 4

GRAPHICAL REPRESENTATION
of GENERAL EDUCATION IN
FOUR YEAR INTEGRATED TEACHER
EDUCATION PROGRAMME.

History of Science:

For the proper appreciation of scientific knowledge, it was an advantage to know how scientific thought has developed from the early period of the human progress to date. India herself contributed a good deal to the development of mathematics, astronomy, chemistry and medicine. It will be an asset for a school teacher to possess some knowledge of the history of science as it would enable him to impart training with full consciousness of the important stages through which science revolution had passed through. The provision was made in this course, therefore, for the study of this important, although hitherto neglected subject.

The Fig-4 show the place of General Education in the total programme of four year integrated course in science which infact contained 53% of the total programme for content specialisation, 25% of professional education and 22% of general education.

Further on analysis it was revealed that the general education portion of the total programme consisted the following subject in percent-wise of the total programme.

GENERAL EDUCATION

(22%)

English	Regional Language	Social Science	History of Science	Health & Physical Education
11.5% (taught in 1st, 2nd & 3rd Year	3.5% (taught in 1st & 2nd Year.	3.5% (Taught in 1st & 2nd Year)		3.5% It was an integral part of the total programme practiced for all 4-years)

4. Professional Education:

A science teacher must also receive professional education which will make him an efficient teacher in the class room. Such education may be provided by courses in Educational Psychology, principles of education, history of education, school organisation and methodology of education and experience in student teaching. The course will, therefore have to include a suitable provision of pedagogy courses.

Fig-5 shows the details of the professional education component of the total programme. It is approximately, 25% of the total programme which further contained the following segments in percent-wise form for different pedagogic sciences taught during the four years in the integrated teacher education programme.

1. Psychology 5.6%
   (consisting of general psychology and educational Psychology)
2. Problems of Indian Education - 2.8%
3. Philosophical & Sociological Foundation of Education - 2.8%
4. Workshop in Teaching - 2.8%
5. Special Methods - 2.8%
6. Field Experience or Internship in Teaching - 8.2%.

DISTRIBUTION OF COURSES ON PERCENTAGE WISE

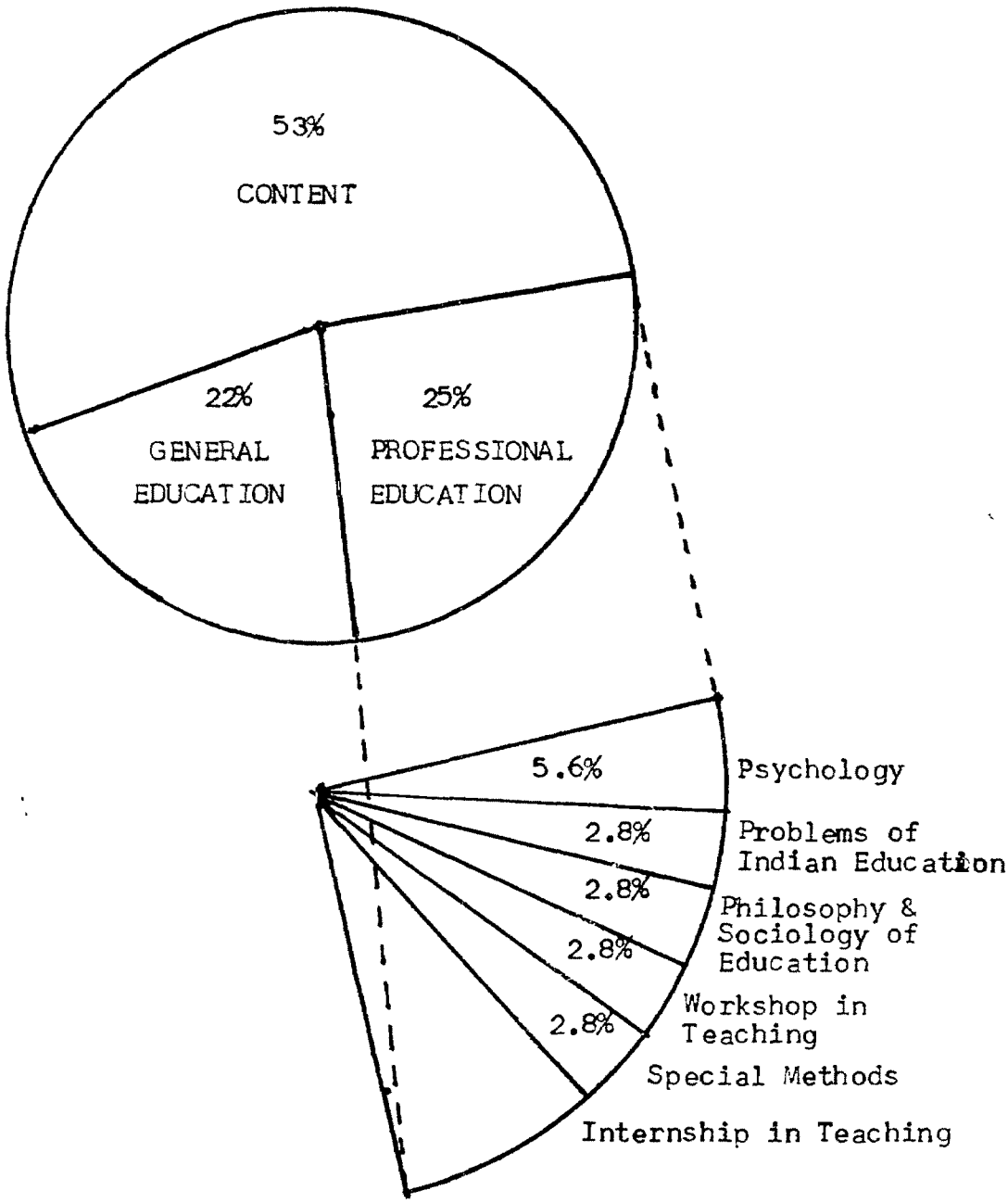

Fig. 5

GRAPHIC REPRESENTATION OF PROFESSIONAL EDUCATION IN FOUR YEAR INTEGRATED TEACHER EDUCATION PROGRAMME

To summerise, three major considerations had governed the determination of course for the integration programme:

a. to give the science teacher a sufficient degree of subject competence.

b. to give him a well rounded education by a balanced programme of liberal arts.

c. to make him a good teacher by a suitable course of pedagogy.

Duration of the course:

The Study Group recommended: "If we are to meet the requirements of these three essential facts of the science teacher's preparation and maintain at the same time the normally accepted standards of trained science-graduate-teachers as recognised and accepted in the country today, the group is of the opinion that the courses will have to be of four year duration". The allocation of class time between the major subject areas was approximately as follows:

Science	59 %
Pedagogy	22%%
General Education	19 %

(Shown in Fig-6).

The three components of the four year integrated course, general education, content specialisation and professional education are taken together. These cannot be thought of in isolation as these are so closely weaven together into the total course they are quite inseperable from each other. These components are integrated together to have an unified approach to science and closely interrelated to form an unified approach to the teacher education in Science Stream. The general education or liberal arts education is so embodied into the whole course that it is aimed at certain competencies in a prospective teacher. The total integration in terms of course and content and in time allotment to different courses and curricula has been attained in the programme, which ultimately responsible for exhibiting certain skills (competencies) in student-teachers prepared through this integrated approach in teacher education.

The Extent to which the Integration is Attained Through this Approach of Teacher Education:

In order to achieve this objective of the study the researcher has tried to analyse the objectives and teaching strategies of different curriculam components and the subject matters of the course and content of the four year integrated teacher education programme of the Regional college of education. The plan & programme (1963) and Report of the working group on courses of study in science education in the Regional colleges of Education (1962) were taken for analysis by the investigator. The analysis of components and sub-components were done in order

find out to what extent the integration in the general education, content specialisation and professional education has been achieved in the course and curricula prescribed for the teachers prepared through the integrated approach of teacher education.

GENERAL EDUCATION

English

Nature and Role of the Sequence

The objectives of placing English in the field of General Education was to enable the student to have access to the thought and literature of an important foreign language and to develop in him the requisite skills in the use of the alnguage. The student's general grasp of other subjects depended to a large extent, on his comprehension of books and periodicals in English. The quality of his performance was conditioned by the effectiveness with which he can express himself in English through the written as well as the spoken word. At the time of admission to the Regional Colleges of Education, the students may not have a very adequate mastery of English and they may not be able to handle even simple structures correctly.

Therefore, instructions in English should help them:

a. to develop an interest in reading good literature;
b. to comprehend general and special reading amaterials;
c. to develop vocabulary and felicity of expression, both spoken and written;

d. to develop the ability to use the English Language correctly and effectively.

Teaching Method:

In order to assess the attainment of students on admission to the college, a test should be given to find out vocabulary and structures known to them, their comprehension of English, written or spoken, and their familiarity with reference techniques. It may reveal the common mistakes of sequence of tenses use of articles, word order and concord in the sentence. Special coaching should be given to remove these weaknesses.

Emphasis should be laid on the rapid development of student's vocabulary. The language materials should be so organized that students gain a mastery over 6000 essential words and the ability to use correctly the most frequent verb-forms. The P.U.C. word lists prepared by the Central Institute of English, Hyderabad, the Monograph on verb-form frequency count by Mr.H.V. George and published by the C.I.E. Hyderabad, and Zandvoort's handbook of English Grammer will be found useful for the purpose. Discimination between similar words and word formation may be emphasized.

The work in the classroom should go on in small tutorial groups whereever practicable, and enough opportunities should be provided for group discussions, speaking to the class, comprising dialogues and listening to good English speech for which tapes and records may also be used. Students should be trained in the

use of reference material like dictionaries, encyclopaedias, index and content lists, the library and card catalogues, tables and charts. Sufficient written exercises in quick comprehension and may be used for the purpose. In order to make writing work purposeful and useful, the students may be asked to write a few paragraphs with a given vocabulary or structural patterns and these written assignements may be related to the text books read, films seen and projects undertaken. Translation from English into regional language will improve comprehension. A list of technical terms and their equivalents in the regional language may be prepared by the students.

Students should be encouraged to read widely, and for their guidance a list of readings should be prepared. Credit should be given for any extra reading done outside the list. In such readings, the students should be trained in grasping the main idea, in discriminating between relevant and irrelevant details, in recognising incongruities in drawing conclusions, in predicting and evaluating.

Suitable recreational activities should be organized to improve students' English. Educational films and gramophone records, may be used and their themes discussed.

The students should be required to maintain a record of their general reading during the year.

Regional Language

Nature and Role of the Sequence:

Since students will be sent to their own states for their field experiences and since most students will return to their own states for employment, a sequence in regional language is considered necessary to give the students sufficient competence in the use of the regional language as a medium of scientific thought. The number of languages provided will vary from college to college, depending on the number of major languages used in the respective regions.

The objects of the course are:

a. to study the literature of the language,
b. to study the cultural significance and relationships of the language,
c. to improve the quality of oral and written expression of the student, and
d. to teach such glossaries of scientific and technical terms as may exist in the regional language. (The meanings thus gained will be strangthened in the courses in which the terms are used).

Teaching Method:

Each student will study the language of his state. The methods of instruction will be determined by the requirements of the students. This implies, a careful diagnosis of the students

achievement in his mother tongue early in the first year and the drawing up of a individualised type of programme.

Social Science

Nature and Role of the Course:

This course is designed as a broad integration of the various elements of the social sciences. The purposes of the course are to help the student to -

a. develop an awareness of the social phenomena,
b. understand the central facts, events and forces that operate in society in terms of conceptual frameworks and the value premises or underlying assumptions and
c. appreciate the infinite variety and complexity of human aspirations and the potentialities for their fulfilment.

Teaching Method:

Lecture, discussion, seminars and team teaching should be used according to the requirements of each unit. The account should be on extensive reading problem solving the integration of the various disciplines.

History of Science and Technology

Nature and purpose of the Course:

This course was designed to provide the students of science and technology with a historical perspective of their respective fields and the inter-relationships of these fields and

an understanding of how the scientific method has been applied to increase man's knowledge of his environment and how technology has applied scientific knowledge to the world of work, thereby increasing man's ability to control his environment and to improve his standard of living.

Teaching Method:

The course will be taught cooperatively by the staff of the social science, science and technology departments.

The survey nature of the course will make it essential to use a broad range of reference materials. Audio-Visual materials will also be used, to demonstrate or illustrate scientific principles and technological developments. Lecture, discussions will be the principle instructional method employed.

Health Physical Education and Recreation

Nature and Role of the Sequence:

The sequence in Health, Physical Education and Recreation is designed to contribute primarily to general education. It will also contribute to the professional education of the student by providing opportunities for assuming leadership and responsibility in formal and informal recreational activities on the campus, in schools and in cummunities.

Two courses will be offered; namely Health and Physical Development, a 30 minute course offered in the morning; and Health

Physical Education and Recreation, a 70 minute course offered in the evening.

While attendance at both courses will be obligatory, the course in Health, Physical Education and Recreation will be individualised to a very large extent.

The related course, Workshop in Teaching, contains a major professional unit dealing with health and human relations which will be based to a considerable extent on the general education courses in this sequence.

The purposes of the sequence are the following:

1. To develop useful, fundamental skills -
   Living safely and successfully - skills, such as walking, dodging, lifting, running, jumping, throwing, climbing and participation in activities which will have carry-over value - individual, dual and team sports rhythmic exercises.

2. To establish, maintain and improve physical fitness and body development-strength, agibility, flexibility, balance, coordination, endurance.

3. To offer opportunities to acquire interest, tastes and skills in recreational pursuits, such as, hunting, fishing, gardening and nature study.

4. To appreciate sports as a participant and a spectator by learning rules, scoring and strategy involved in the activities in which the student engaged.

d. To provide opportunities for self-expression and creative ability through non-academic pursuits and for developing and perfecting a style of relaxation.

6. To develop the skills of listening, observing and following directions, such as aircraft observation particularly, acting as watch and ward.

7. To establish, develop and maintain good attitudes towards:

   a. personal health
   b. mental health
   c. family living
   d. community health
   e. safety in the home, school, community and at work
   f. first aid
   g. effects of alcohol, tobacco and drugs
   h. nutrition.

8. To develop good sportmanship by:

   a. getting alongwith others
   b. exhibiting humility in victory, graciousness in defeat
   c. evidencing loyalty to team or group
   d. competitive and cooperative spirit, as the occasion demands
   e. appreciation of a good performance by others
   f. initiative
   g. courtesy on and off the field
   h. ability to adapt to changing conditions.

   self-confidence, self-control and emotional stability.

9. To develop an understanding of the way in which scientific knowledge contributes to better health.

10. To recognize health improvement as a world problem and to encourage support of world-wide scientific and humanitarian efforts and organizations.

11. To encourage the individual to appreciate and support the work and services of local and state health and safety departments and volunteer organisations.

Teaching Method:

The course in Health and Physical Education Development (30 minutes period) will be designed to achieve growth and Health largely through physical activity.

The 70-minutes course in the evening is designed to cover primarily objectives of health and recreation. The first aid instruction will be based on the programme outlined by the St.John's Ambulance Unit. The school physician will help the departmental personnel with the instruction. Personal Health, sex-education, nutrition and utilization of health services can be taught with the help of the school physician.

The biological and psychological bases of health and growth are taught in related courses and this background should be utilized.

Rifle practice can be worked out with the help of local rifle clubs. Scouting and guiding activities should be carried out

with the help of resource people in the community.

The more specialised games must be taught by departmental personnel, but many games can well be taught by student leaders. The Board cultural activities can be taught by student leaders and interested staff members.

PROFESSIONAL EDUCATION

The professional programme of the Regional colleges of Education is based on the belief that the teacher should have certain very important characteristics, namely;

a. be educated in the subject matter he will teach
b. be professionally educated in order that he may become an effective and intelligent teacher and
c. be educated to function in society both as a citizen and as a professional teacher.

It follows that the various parts of the total curriculum are all inter-related and are all equally important, and the staff will operate as a team.

Every effort has been made to build the practical core of professional education on the experiences to be derived from the life of the community and the schools in action.

The guidance programme is planned to focus on career problems and objectives. It is also designed to help the prospective teacher to understand placement possibilities and to help

him in placement and adjustment on the job.

In many ways, the field experiences planned for the prospective teacher will be the culmination of the professional programme, providing a testing ground for what he has learnt through the total programme.

General & Educational Psychology

Nature and Role of the Sequence:

The first course, General Psychology, is designed to be general and non-technical. Practical applications of principles are to be stressed. The second course, Educational Psychology is designed to be a basic element in professional education. This course will stress learning and the foundations of teaching-learning processes.

Teaching Method:

In the year II, the prescribed text as well as the teaching method should be focussed on specific problems. Lectures should be supplimented by discussion and illustrated by practicles. Emphasis should be given to wide reading, some of which may be in the regional language of the student. Children should be observed in normal and stress situations.

In the year III emphasis should be placed on the learning process. The work should be integrated with the two courses in special methods since these courses have a time allotment to allow for classroom observations. Joint seminars might well be held.

Foundations and Problems of Education

Nature and Role of the Sequence:

The objective of this sequence is to enable the student to attempt an answer to questions like these: What is knowledge ? What is Phylosophy ? What is Education ? What Education is of most worth ? What are the philosophical, historical, sociological and psychological bases of various educational concepts and practices ? Does education determine the nature of the social order or is the nature of education determined by the social order ? Can a education work for peace and international understanding ? What are the limitations of education and philosophy ? What Educational policies should India adopt ?

The sequence should enable the student to use all his general and professional knowledge to view the philosophical and sociological problems of education in India as a whole. It should give the student an opportunity to synthesize the knwoledge and experience he has gained and also prepare him for gaining further knowledge and experience.

Teaching Method:

The units in the first year are designed to give a back-ground to the sequence. The emphasis should be placed on the role of the secondary teacher. Common seminars could be held with closely related courses such as: Workshop in Teaching, Special Methods and Internship in teaching, the course on The History of Science and

Technology. Students could make studies of the communities in which they will have their internship in teaching.

The emphasis in the second year should be on educational problems. Attention should be given to the conscious development of a philosophy of education by each student, which would be rooted in the cultural and other values of the Indian way of life.

Workshop in Teaching

Nature and Purpose of the Course:

This course is designed to bring together the applications of theory to the secondary school situation. It will focus the students' attention on the profession of teaching and lay a broad basis for the courses in methods and principles that follow or are taught concurrently.

Teaching Method:

Because of its role and content, this course should be assigned to an experienced teacher who would assume responsibility for the course. He will, however, need the help of a number of specialists as indicated by the content including specialists in evaluation psychology, guidance, health, physical education and recreation.

It is expected that the course will be taught as a demonstration in techniques of team teaching, and in pupil-teacher planning.

The course should be planned and integration with observations of children and classrooms and the work of other professional courses in year III as well as Health, physical education and Recreation. Observations should be planned jointly with teachers teaching the special methods courses since the time allotment for observing is specifically scheduled in those courses.

The team teaching will require -

a. a preplanned syllabus,
b. statements of objectives and evaluative criteria,
c. continuous cooperative planning and
d. the use of carefully prepared and selected materials of instruction.

Internship in Teaching:

Nature and Role of the Course:

The term "Internship" - used more often in the training programmes of certain other professions than in teacher training refers to an arrangement under which a prospective teacher can acquire his first experience as a teacher in a situation closely resembling that in which he will be working when he enters the profession.

This course is designed to provide each student with a comprehensive experience and will be implemented in a realistic teaching-learning situation in the cooperating schools. To make the total experience similar to actual teaching, student will work

full-time in the cooperating schools. A block of about eight weeks time should provide the student ample opportunity to become well-acquainted with the school and community setting and the normal role of a teacher.

Students will be assigned to cooperating schools in two groups, Group A (science students) and Group B (technology students) Group A will begin its internship at about the middle of the college year, continuing for about eight weeks. Group B will go to selected schools for eight weeks immediately after Group A completes its work.

Teaching Method:

Actual participation on the part of each student will be the basis of this course. Selection of specific experiences to be provided will be the combined responsibility of the cooperating teacher and headmaster, college personnel and the student teacher.

The greater part of the assistance to the student teacher during internship will come from the cooperating teacher. Experiences are to be planned and evaluated cooperatively by the concerned departments of the Regional College will visit the cooperating schools periodically to observe the progress of the student-teacher. Criticism of the performance of the student-teacher should be done by the college personnel, the student teacher, and the cooperating teacher and the headmaster.

The early part of the internship should be devoted to practising the many duties of a teacher, both instructional and non-instructional. A full teaching assignment should be gradually assumed by the student during the final weeks of the course.

Periodic seminars will be held on a weekly or bi-weekly basis in which students from several cooperating schools will meet the staff from the Regional College Discussion of teaching problems and experience will be the major purpose of these sessions. Several written assignments will be included in the requirements.

CONTENT SPECIALISATION

Subject Organisation:

Based on the above considerations, a plan had been worked out for the scheme of courses for the Physical Science Group and the Biological Science Group. In working out the courses, it had been endeavoured to provide as many combinations of subjects as would be required in the secondary schools, such as Physics and Chemistry or Physics and Mathematics or Botany and Zoology. (Shown in Fig-6).

Physical Sciences Group:

Major:

Students taking this group will have in the first two years a unified course in Physical Sciences which will include

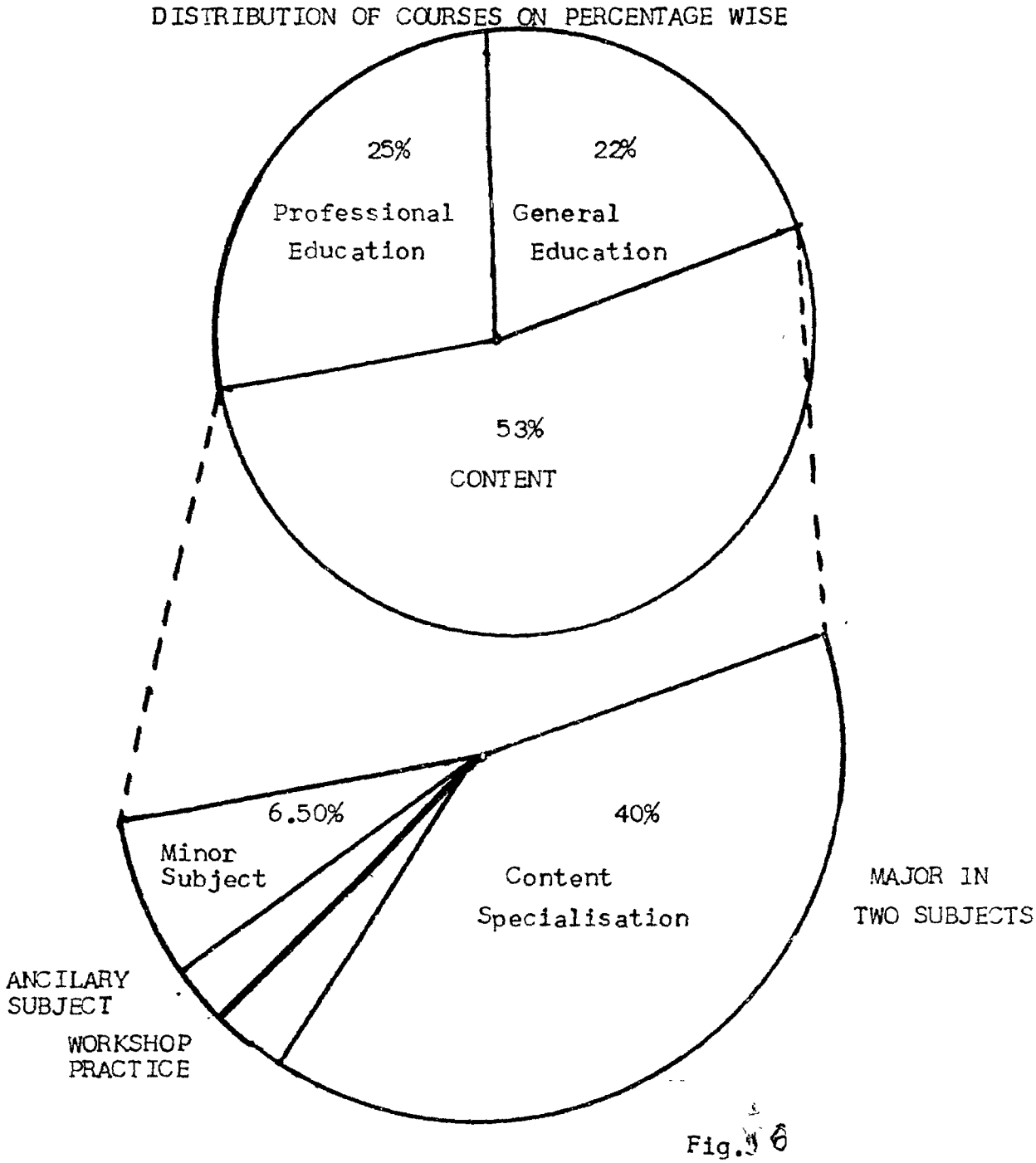

Fig. 6

GRAPHIC REPRESENTATION OF CONTENT EDUCATION IN FOUR YEAR INTEGRATED TEACHER EDUCATION PROGRAMME

the study of fundamental concepts in physics, Chemistry, Astronomy and Geology. They will offer one paper at the end of the first year and a second at the end of the second year. This course is intended to teach physics and chemistry as one integral subject, aims at avoiding repetitive teaching of common topics, once under physics and again under chemistry. On this basis will be built the individual courses in physics and chemistry during the last two years of the course which will bring the standard to that of the present B.Sc. students will offer one paper (theory) in each of physics and chemistry at the end of the third year and two more papers (theory) in each of the two subjects at the end of the fourth year. They will also be given practical tests. This new approach to the teaching of physics and chemistry should be watched with care and sympathy as an experiment in the right direction.

Physics and Mathematics Group:

An alternative group under the Physical Science would be to take physics and mathematics as majors in the third and fourth year. This group would take the unified courses of Physical and Biological Sciences in the first two years alongwith the same minor Mathematics course as offered by other Physical Science Students.

Minor:

The group recognizes the importance of mathematics as a basic and fundamental science in the study of physics and

Chemistry and has therefore provided a two year course in Mathematics which should bring the trainees to intermediate standard in the minor subject. Evaluation tests will be given at the end of the first and second years.

Ancillary

As ancillary, the Physical Science students will offer a unified course in Biological Sciences for the first two years. They will offer one paper at the end of the first year and one paper at the end of the second year. This course will include a well-balanced programme of zoology, botany, microbiology, human physiology, health and Hygiene.

Biological Science Group:

The scheme of courses for the Biological Sciences group follows the same pattern as for the physical sciences group. The courses in Liberal Arts and Pedagogy are identical. As regards the sciences, this group are identical. As regards the sciences, this group will have a unified course in Biological science for the first two years, offering a paper at the end of each. This will be followed by courses in Botany and Zoology in the third and the fourth years. The minor will be the same unified physical science courses as is taken by the physical science students. The ancillary subjects which this group will offer will be -

a. Mathematics in the first two years and
b. Physiology and Hygiene in the second year.

GENERAL EDUCATION, CONTENT AND PROFESSIONAL EDUCATION
DISTRIBUTION OF TIME
FOUR YEAR INTEGRATED TEACHER EDUCATION PROGRAMME

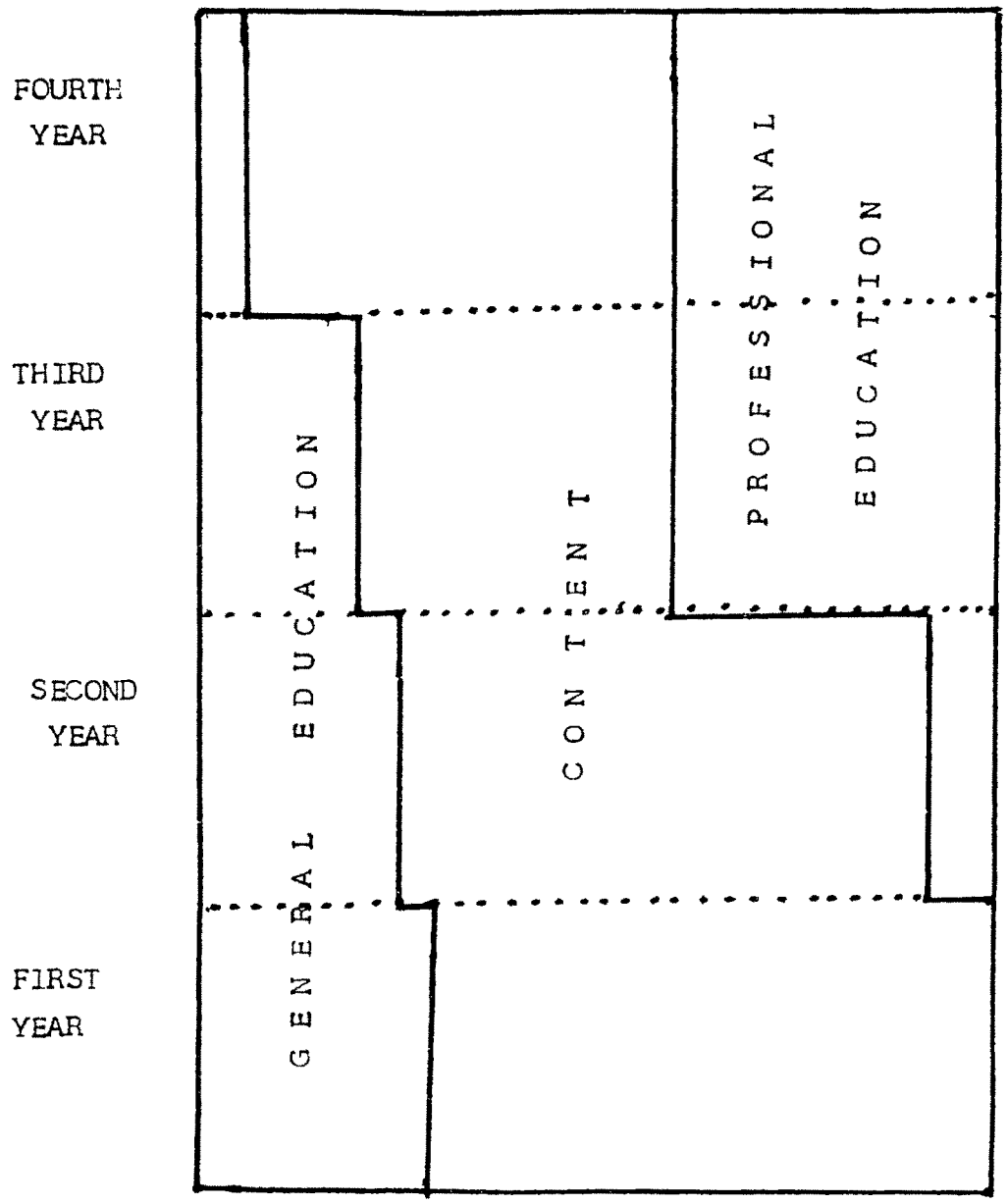

Fig. 7

ALLOCATION OF TIME TO COURSES

They will be examined in these two subjects at the end of the first second years.

The time allocation for the subjects of the two groups may be seen in Fig-7.

Some important considerations on the instruction.

1. The subject matter covered in the syllabus should be made as up-to-date as possible.

2. Wherever appropriate, the lecture method should be judiciously combined with seminar and discussion methods so that students may fully participate in developing concepts and understandings.

3. Provision should be made for inviting guest professors for short periods so that trainees may get inspiration through personal contact with leaders of thought in various scientific fields.

On analysis of the objectives and methods of teaching different subjects in the courses and curricula of B.Sc.B.Ed. (Science) course of the Regional Colleges of Education it could be found that certain guiding principles for facilitation of integration had been taken into consideration. They were:

i) The programme should be organised in such a way that it strengthene the background knowledge of

the teacher-trainees and this foundation was grasped and well understood before integration was attempted.

ii) The integrative threads were identified to form the basis of integrative frame work.

iii) The integration was done in a permissive atmosphere.

iv) The programme expected some required competency of the pre-service teachers trained through this programme from the outset, so that the integration of the materials by courses and curricula under consideration was the goal of the learning experience.

Therefore the organisation of general education, content specialisation and professional education were organised. They were bases on certain assumptions which happened to the basis of identifying the different integrative threads present in the organisation of learning experiences.

Assumptions Underlying in the Programme:

1. The professional competence required of the teacher was achieved through an organised programme of learning experience, it was not merely a by-product of becoming a well educated person.

Thus, the identification of competencies required by a pre-service teacher was done. These competencies were the Chief integrative threads for integration of the general education, content specialisation and professional education componets by the total programme.

The working group on courses of stnd in science education in Regional Colleges of Education listed the major competencies that should be aquired by the science teacher upon completion of the four year integrated teacher preparation and concluded that the science teacher should:

1. possess an extensive understanding One of the major groups (a) Physical Science (b) Biological Sciences or (c) Physics and Mathematics and should display deep knowledge in the group selected;
2. be competent to represent the educational profession and science education in the school and in the community;
3. possess a broad understanding of various aspects of the role of science in shaping the social, economic and technological life;
4. be able to apply psychological principles of learning to class room teaching;
5. be capable of recognising individual needs of students and inculcating and promoting interest in the subject;

6. be able to select and organise subject-matter for instructional purposes and prepare written instructional materials;
7. be qualified to use effectively a variety of teaching techniques;
8. be able to aid in the guidance programme of the school;
9. be capable of assessing pupil achievement;
10. possess professional competence for effective work in class room and laboratory;
11. be able to organise a variety of co-curricular activities in the science; and
12. be able to determine equipment and supply needs essential for a sound science programme.

These competencies were referred to while drafting the syllabuses in science, liberal arts, and pedagogy.

The objectives of teaching different components of a four year course and teaching methods in attaining these objectives were organised around these integrative threads.

The assumptions on the previous back ground knowledge of the student teacher is quite essential for the process of integration. Bloom (1958) Stated "Ideally, the planner of the learning experiences use this knowledge or assumptions about the

previous learning of the students, their initial level of attainment and their abilities". Thus, the learning experience were selected with a view towards helping the students to develop some type of competencies interests in the teaching profession and attitudes towards teaching; and some other type of goal involving the development of the student teachers into a more mature and capable persons.

2. The education of a teacher based broadly on a foundation of general education should include a through mastery of subject matter so as to give him an insight into its structure and inter-relationships, and professional preparation.

The secondary school teacher needed, on the one hand, the higher education required to provide mastery of the basis skills and concepts which underlie mastery of subject matter, and on the other hand, he needed the preparation which enables him to deal expertly with the problems faced by a secondary school teacher. These problems ranged from how to evaluate achievement to how to teach advanced subject matter concepts. Therefore an unified approach in organising science subjects with major and minor areas were included in the courses and curricula.

3. General education which contributed to growth as a person, specialisation which provided scholarly knowledge of the subjects to be taught, and professional performance, were

integrated into a total programme.

Functionally general education, specialisation, and professional education were not to be thought of as compartmentalized and isolated fields of study. Each area leaded on by natural gradation to others, and what one got from one area is reinforced by what was derived from others.

For purposes of presentation the programme in science was presented in Fig-6 arranged under seperate devoted to general education, subject matter education, and professional education. This was not intended, however, to suggest that sharp distinctions exist between these areas, for Example, the basic work in any discipline might appropriately by considered as general education. More important than the framework of presentation, was the requirement that the staff will work as one unit and that all staff members in all departments will strive to help the prospective teacher in forming an integrated structure of what he learned.

4. The prospective teacher must assume responsibility for his own education in an increasing measure.

The goals of teacher education cannot be achieved unless the learner taxes greater responsibility for his own education. Opportunity for independent study must be a built-in part of a teacher education programme, for the spirit of inquiry and

investigation depended upon time for reflection and upon a wide range of opportunity for exercising individual initiative.

5. Opportunities to work with adolescent learners must be an integral part of the professional preparation of the professional secondary school teacher.

The student must spend time with adolescent learners so that he may learn how to help them. Provisions must, therefore, be made for the study of children, for observation and study of the teaching process, for living as a part of a school, and for teaching in a classroom. Under favourable conditions, students admitted to the teacher education programme would be selected, criteria which would identified those higher secondary school students who had highest potential for becoming successful teachers. Their total college programme would accordingly be designed to help them prepare for teaching. However, in curriculum science had this approach been possible because of factors that prohibited further expansion.

This analysis showed that the integration had been attempted:

1. Integration had been attained amongst the different componet of the total teacher education programme i.e. general education, content specialisation and professional education.

2. Integration had been attained in different aspect of science, physical science and biological science. In order to strengthen the course content in science the teaching of mathematics. Minor and Ancellary had been integrated for physical sciences group and bilogical science group respectively.

3. The objectives and methods of teaching different subjects were integrated in order create the desired competencies in a pre-service teacher.

4. There had been an unique integration of liberal arts or general education in the programme to develop certain good qualities in the pre-service teacher for leadership and citizenship.

5. Integration of teaching of Health, Physical Education and Recreation had so nearly integrated in the programme in a four year sequence that it helped in development of a healthy body and sound mind in the pre-service teacher.

6. The course sequences and time allotment had been intimately integrated in the total programme of four year integrated course.

Hence, a neat and hormonious integration had been attained in the total programme of four year integrated teacher education course.