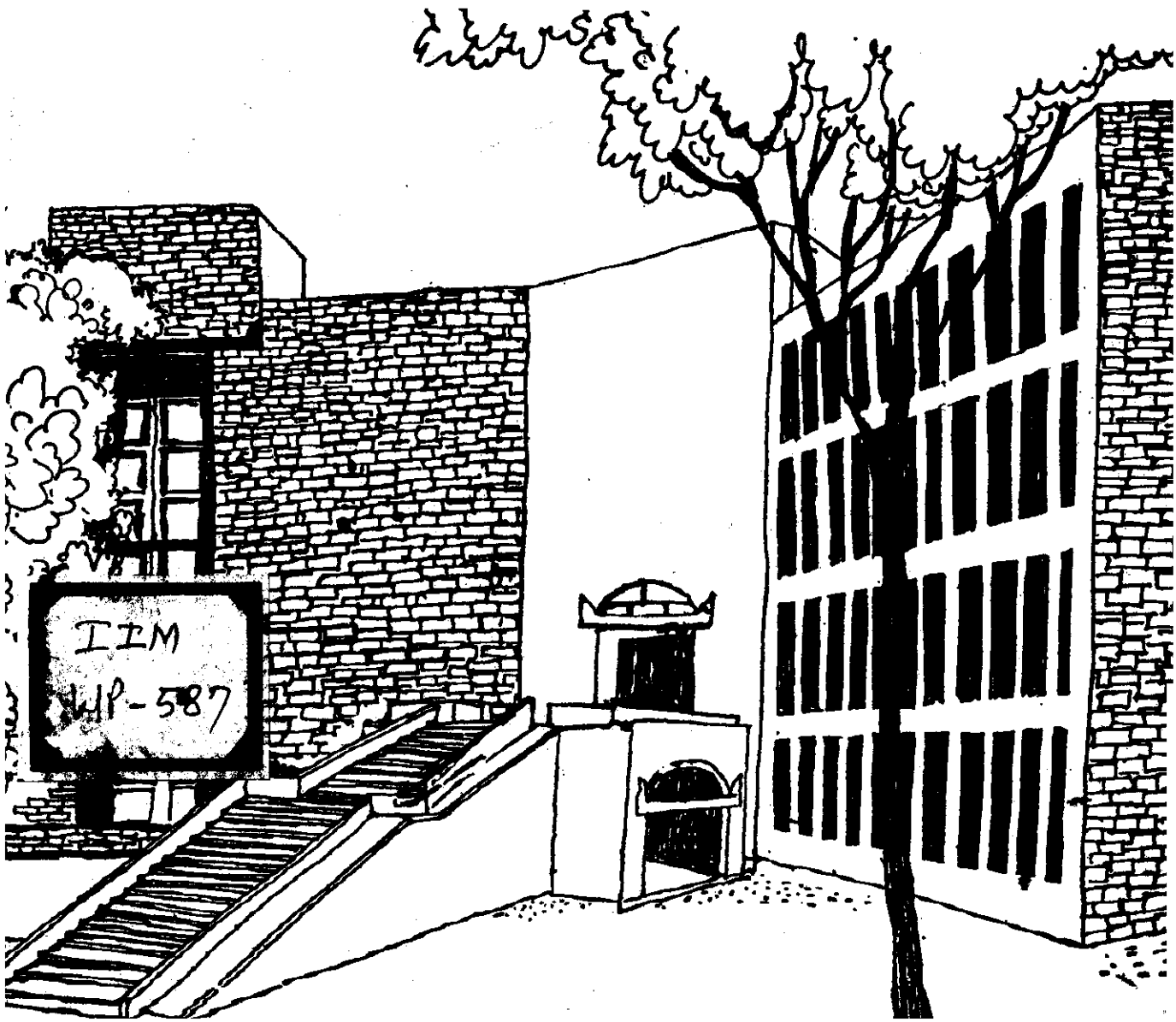
# Working Paper



# INNOVATIONS IN ELEMENTARY EDUCATION IN INDIA

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## 1. Background

Education is a fundamental input in the process of development of any nation, and elementary education even more so since "child is the father of man". Realising this, the planners had laid significant emphasis on elementary education and incorporated in the Constitution that "the State shall endeavour to provide, within a period of ten years from the commencement of this Constitution, for free and compulsory education for all children until they complete the age of fourteen years" (Article 45).

We have come a long way since then, yet there is much to be done. The present status of elementary education in the country is of a mixed nature. There are a variety of problem to be faced at every step of the process of education. As one might expect, a number of innovative strategies have evolved over time, both within and outside the formal system, to facilitate the faster achievement of essentially the same objective. This paper seeks to develop an understanding of such innovations. Before going into the details of innovation, however, it would be reasonable to look into the reasons that necessitate innovations.

## 2. Progress towards Universalization of Elementary Education

Universalization of elementary education has three components, viz.,

- (Universal) PROVISION of schooling facilities within easy reach of every child
- (Universal) ENROLMENT of all children in the age group 6-14 and
- (Universal) RETENTION, i.e. ensuring that a child, enrolled in Std. I at age 6, continues to progress gradually till he/she passes Std. VIII at the age of 14.

While Exhibits 1 to 6 give more detailed picture of performance on these aspects, the following are brief indications of how well we have done.

- No. of primary schools has more than doubled, and presently there are about 5 lakh primary schools in India.
- As per NCERT's Fourth All-India Educational Survey, 93% of the rural population has physical access to a primary school within a radius of one kilometre.
- About 46% of primary schools have pucca buildings.
- Enrolment ratio (Std. I-V) has almost doubled from 43% (1950-5 to 84% (1979-80), and that for Std. VI-VIII has tripled from 13% to 40% during the same period.
- Expenditure on elementary education has increased more than ten times from Rs.85 crores in the First Plan to a proposed Rs.100 crores in the Sixth Plan.

## 3. Problems/Issues in Universalization

Though the progress towards universalization of primary education, as is borne out from earlier discussions, is by no means, insignificant, there are still many unresolved problems which are discussed below.

### a) Difficulties in Universal Provision

The total No. of children enrolled in classes I to VIII has grown from about 22 million (1950-51) to 91 million (1979-80), covering respectively 32% and 67% of the age-group 6-14 years. Despite this progress, the absolute number of children who are not enrolled is about 45 million in 1979-80, approximately, the same as in 1950-51. In fact, we arrive at the same quantum of unfinished task at the beginning of every plan, notwithstanding the growing no. of schools and teachers **Exhibit 1.** While other factors of socio-economic nature also affect enrolment, the lack of schooling facilities is itself a major cause. The main reasons for this are: i) financial constraints ii) geographical distribution of rural habitations which are distantly and unevenly located, thus making universal provision a difficult job. Therefore, there is obviously a need for evolving alternative systems which are financially and geographically more feasibles and can be operated with (mostly) local resources - material and human.

### b) Enrolment:

In addition to the problems of lower enrolment of disadvantaged sections of society e.g. girls, SCs/STs (discussed later) there is a problem of over-age/under-age enrolment. The "planned" age-group for

Grades I-V is 6-11 years and that for VI-VIII is 11-14 years. However as Exhibit 13 shows, the enrolment in age-group 6-11 (539 lakhs) is only about 78% of the enrolment in Grades I-V (686 lakhs). Since the enrolment of children of age-group (6-11) years in grades VI-VIII is negligible, this means that about one-fourth of primary stage enrolment is of children below 6 or above 11 years of age. This is strengthed by Kurrien's estimates of actual (refined) enrolment ratio. (Exhibit 8 ). Refining the official enrolment ratios for i) under-estimation of population of respective age-groups ii) correction for under-age/over-age enrolment in grades I-V and VI-VIII, he says that the refined enrolment ratio for Grades I-V (age-group 6-11) is only 63%, as compared to official estimates of 84%.

Another problem relates to wider differences in various states regarding enrolment etc. (Exhibit 13 ). It is estimated that 75% of non-enrolled children at primary stage, are recounted for by nine states, viz., Assam, Andhra Pradesh, Bihar, Jammu and Kashmir, Madhya Pradesh Orissa, Rajasthan, Uttar Pradesh, and West Bengal. Needless to say, special efforts are required towards fresh approaches to education in these states.

c) Wastage & Stagnation

This is by far the most pressing problem in achievement of the constitutional directive-of eight years of Universal primary education. 'Wastage' refers to a child dropping-out of school at any stage from Class I to VIII, 'Stagnation' refers to those who fail in a particular class and have to repeat.

As can be seen from Exhibit 14, which gives data for enrolment in successive grade during 1968-77, out of every 100 children enrolled in Std. I, only 35 reach class V, and only 22 reach Class VIII. This trend is by-and-large same even today, and the extent of wastage during I-V classes is more than 65%, more than half of which is at Std. I itself. Further, as might be expected, the figures are higher in case of girls and backward classes (discussed later).

The major reasons for wastage, as indicated by various studies, are as follows:

Problems related to children/schools

1. Low levels of Health/Nutrition
2. Lack of Motivation/interest in learning/level of aspiration
3. Perception of curriculam as unsuited to local environment
4. School not within walking distance
5. School hours conflict with other work at home or in the field.
6. Failure in examinations
7. Teaching methods

Problems related to parents/community

1. Illiteracy of parents
2. Employment of children in family occupation (agriculture, etc) or other household chores
3. Low economic status
4. Unfavourable Social Attitudes
5. Seasonal migration of certain tribes and occupational groups

The list is by no means exhaustive. But it does indicate, the socio-economic nature of the problem and points out that while the problems like evaluation system, school hours, etc. can, in principle, be atte ded to by the educational system, the other problems which are social and/or economic in nature, and are the major causes of wastage, requ a concerted, innovative effort on a wider basis.

d) Girl's Education

Whereas the enrolment ratio for boys in grade I-V was more than 100% in 1979-80 (see exhibit 9), that for girls was only 66%. The gap is even more for grade VI-VIII. Also, the wastage is higher in girls. This is especially pronounced in rural areas where (Exhibit 9) for every 36 girls in class I, only 10 were in class V, indicating approx. a wastage of 72% as compared to about 61%, for boys. While the reasons cited earlier apply here as well, the factors that specially effect girl's enrolment and retention are:

1. Social attitude towards girl's education
2. Early marriage
3. Lack of security for girls
4. High involvement of girls in household chores and care of younger siblings, etc.

e, Education of Scheduled Castes & Scheduled Tribes

Despite the special constitutional status of and protective policies aimed at betterment of SCs and STs, the progress achieved has not been satisfactory. Exhibit 12 indicates that the overall enrolment of SCs and STs as a percentage of total enrolment in Grade I-V is 14.73%

and 6.28% respectively. While this compares well with their percentage in the total population, viz., 14.60% an 6.94%, respectively (as per 1971 census); the incidence of wastage is higher for these classes. This is evident from the decreasing percentage of their strength in successive grade. Percentage of SC's to total enrolment decreases from more than 16% in grade I to less than 12% in Grade V; and that of ST's from 8% to 4%. This is, expectedly, more pronounced in rural areas.

The major reasons for these differences are:

1. Economic status
2. Geographical factors (as discussed earlier)
3. Superstitions and rigid social attitudes towards education
4. Migration practices of many tribes
5. Prejudices against these classes

Of course, the reasons cited earlier for general population apply here as well.

f) School System & Administration

There are many problems inherent in the educational system itself, that hamper achievement of the goal. Some of these are:

- Training and Motivation of teachers
- Lack of relevance of curriculam to local needs
- Evaluation System and Sequential Promotion
- Inadequate facilities
- Infrequent, incomprehensive supervision.

Many such problems have a direct bearing on enrolment of a child in the schooling system and his continual retention and promotion. The problems themselves arise due to many factors - financial, administrative/political and social.

The discussion so far is not meant to be an exhaustive list of all the ailment in primary education, but is aimed to illustrate that the conventional, formal school system has failed to deliver the goods - due to both controllable and uncontrollable problems faced by the system itself. Therefore, it is essential that innovative, fresh approaches be evolved and encouraged, to supplement, modify or substitute, if necessary, the existing system.

4. The Educational System: Conceptualization

Before we turn to innovations, it would be helpful to see what "sub-systems" constitute the educational system and what variables are involved therein which affect its performance. (Exhibit 1)

There are, broadly speaking, four "systems", interacting with each other, that comprise the entire scenario of primary education;

i) Administration

ii) Delivery System

iii) Client

iv) Community

The individuals and organizations involved in the tasks of policy-making, strategy formulation, resource generation and distribution, supervision/inspection, research and development, comprise what can be

called, for want of a better term, the administrative system.

The delivery system i.e. the school, which is really the ultimate battle ground, has three aspects, viz., Programme Design, Teachers (& Staff), and Physical/educational facilities and incentives. Programme design includes, variables related to the syllabus, instruction methodology & aids, evaluation, etc. Physical facilities refer to buildings, furniture, play-grounds, water supply etc. Educational facilities are those physical inputs which facilitate the process of instruction & learning viz., free text-books. Finally, the teachers themselves - their motivation, discipline and training greatly affect the quality of education that obtains.

On the CLIENT side, the quantity and quality of education (learning) is directly affected by variables such as 'interest (which would be related to their needs and aspirations, of course), economic (occupational) pressures, at home, health, walking distance to school, relationship with teachers, success/failure in examinations, etc.

Last, but not the least, is the community - i.e. society in general that interacts with the above mentioned sub-system at various levels. Some of the significant community-based factors are: attitudes towards education, especially girls' education; degree of involvement in the educational system at various stages (provision) enrolment, retention, feedback), occupational structure and its implication for educational system, etc.

**EXHIBIT 1**

Systems and Variables in Primary Education

## COMMUNITY

* Involvement
* Social attitudes
* Economic (occupational) structure
* Literacy
* Seasonal Migration
* Voluntary agencies

## ADMINISTRATION

* Policy/Strategy
* Planning
* Finance
* Supervision/Inspection
* Research & Development

## DELIVERY SYSTEM

### PROGRAMME DESIGN

* Curriculam
* Methodology, Aids
* School Timings
* Pupil-teacher Ratio
* Evaluation & Promotion

### PHYSICAL FACILITIES & INCENTIVES

* Building, furniture
* Play-grounds
* Meals

### EDUCATIONAL FACILITIES & INCENTIVES

* Learning Aids : Maps, etc
* Text books
* Equipment

### TEACHERS

* Motivation
* Training
* Discipline

## CLIENT

* Needs & Aspirations
* Interest
* Accessibility of School
* Health
* Economic (Occupational) pressure at home
* Involvement in household chores
* Relations with teachers

## 5. Innovations : Concepts & Classifications

The term "innovation" has 'change' as a fundamental component. Change, itself can be roughly defined as a perceptible (desirable/ measurable) alternation in 'something' (from a stock of bread to a military strategy) that obtains within a certain time period. But is every change an innovation? If not, how does innovation differ from change? Let us sample some definition:

> "Innovation is ... .. .. the creative selection, organisation and utilization of human and material resources in new and unique ways which will result in the attainment of a higher level of achievement for the defined goals and objectives." (Richland, M.)[1]
>
> ".....innovation is a treacherous term, being both seductive and misleading ..... seductive, because it connotes improvement and progress, when actually it only means something new and different. Misleading, because it displaces attention from the essence of the activity involved - learning - to a concern with the technology of education" (Westley, W.)[2]
>
> "..... (innovation can be defined) as a deliberate, moral, specific change, which is thought to be more efficacious in accomplishing the goals of a system." (Miles M.B.)[3]

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1,2 Richland, M and Westley, W., - as quoted in "Understanding Change in Education : An Introduction" A.M. Huberman, the UNESCO Press, Paris, P. 5

3 'Innovations in Education' - Matthew B. Miles, Teachers College, Columbia University, New York, 1964, P. 14.

Thus it is obvious that every change is not an innovation. To be more specific, the characteristics of an innovation, with special reference to educational systems, can be outlined as follows:

i) An innovation has a pre-determined, specific, objective which may or may not be at variance with the present objectives of the system in which the innovation is sought to be introduced.

ii) An innovation involves a desire for change and a deliberate, intentional approach towards achievement of such change. (This may also broadly be termed as "strategy")

A qualification is, however, necessary in view of our concerns here with the educational system. Some scholars feel that an act is innovative only if it adds to the sum of known "inventions". Otherwise, it would just be an invitation or a further horizontal/vertical diffusion of the same innovation. In education, however, the main concern is with achievement of the goal i.e. learning, rather than the newness/uniqueness of a particular approach. Hence, for our purposes, even though many "innovations" described hereinafter may actually only reflect adoption of an original idea in different settings, we will concentrate mainly on the aspect of adoption of a particular innovation.

It would be useful to classify innovations before studying the specific cases. There can be three approaches to classification of innovations, as discussed below:

i) According to Innovational CONTENT: By 'content' we mean the particular element/stage of the educational process being changed/modified by the innovation. For instance, innovations may be made in timing, evaluation, teacher motivation, instruction methodology, etc. Here, two broad categories are possible:

a) OPERATIONAL:

Innovations at the "grass-root" level, e.g. in buildings, equipments, methodologies, etc. In such cases, the no. of people involved is small and less time is required to implement the innovation since the degree of complexity itself is low. Briefly, the 'canvas' of such innovation is essentially limited, and there may be differences from one place to another, in implementation of essentially the same innovation.

b) STRATEGIC:

Strategic innovations, e.g. Ashram Shalas, Gaxi Education, Shift System make considerably more changes than operational and have a bigger canvas. They usually flow top-down. The degree of complexity, the no. of people involved, and the amount of time and effort required is significantly more than in the case of operational innovations.

ii) According to the Nature of Innovatic

Innovations can also be classified according to their 'nature' i.e. the effect they have, viz.

a) Substitution: - by far the most common, and typically at the operational level; e.g. a new text-book or a new teacher or principal;

b) Alteration and Restructuring - involves change in existing structures rather than a complete substitution of elements, e.g. re-arrangement of work space, curriculam, classes; shifting responsibilities for, say, evaluation from (internal) teachers to outside examiners, and so on.

c) Addition : Involves supplementing/complementing the existing elements without changing the present patterns, per se. e.g., mid-day meal programmes; workshops, and so on. Easiest to implement because it evokes little resistance.

Besides these three types, of course, once a innovation has been instituted, it would require reinforcement for its continuation.

In the following part of this paper, we shall discuss the major innovators that have taken place in elementary education in India, over the last two decades. Innovations are broadly arranged on a continuation of complexity as they proceed from the "entirely operational" to the "entirely strategic". It would be noticed that, as we go along the continuum, there is:

i) a general increase in the number of element (in the educational system) being - or sought to be - affected by the innovation, i.e. the multiplicity of objectives;

ii) gradual shift from simply "additive" type of innovation to those which involve more and more comprehensive re-structuring of the existing patterns;

iii) an increase in the amount of effort required, number of people involved, and the degree of horizontal integration (i.e. the degree of universality of experimentation or geographical coverage); and therefore,

iv) an increasing complexity of implementation.

## 6. Some Innovations in Elementary Education in India

### (1) TEACHER-TRAINING PROGRAMMES

There are two main reasons that necessitate a systematic in-service training for school teachers: first, the deterioration on the quality of education as a result of rapid expansion of primary education, and second, the importance of the up-dating of teachers' knowledge and understanding of the latest developments in education as also the revision and improvement in the knowledge of the subject matter itself.

These programmes, innovative when they were started, are essentially operational in nature, and involve addition (of skills/ knowledge of teachers) to the existing "resources". Two such programmes are discussed below:

#### a) Refresher Training Centres (RTCs)

The government of Rajasthan opened its first RTC at Mount Abu in 1965. The scheme was later expanded and, as of 1974, there were 12 RTCs in the state. The training programme in the RTCs is designed mainly to help the teachers improve their academic standard as well as the methodology of teaching. The course is divided into teaching units. Demonstration lessons, remedial teaching, individual assignments, group discussions and symposia, are some of the techniques employed. Work experience forms an integral part of the syllabus. In addition to the aforementioned general objectives, each RTC has some specific objectives as well. For example, the RTC for upper primary school teachers also

aims at refreshing the understanding of concepts like motivation, needs of slow and fast learners; that for headmasters involves training in supervision, accounts maintenance; and so on. The course has a six-week duration.

Some experiences gained from these RTCs are summarised below:

i) A strong, detailed and specific follow-up programme is required which would help assess the effectiveness of the scheme in terms of improvement at the school level.

ii) The existing objectives were too ambitious and it was felt that the scheme should be organised around specific target-groups, with specific, need-based objectives.

iii) The trainees tended to have a varied academic background, which resulted in non-uniform benefits. Hence, it was suggested that a group should be more homogenous in terms of its "capability profile", and, as said earlier, its needs.

iv) Some sort of incentive (financial) should be provided to teachers who complete the course, on the basis of their performance during and after the course.

b) Orientation Training Programmes

An Orientation Training Centre was attached to the State Institute of Science in Bangalore (1968) with the aim of giving training to science teachers of senior primary schools. The course-spread over six weeks - consists of instruction both in content and methodology. The programme is designed to provide experience in

improvisation of apparatus and conducting experiments with locally available inexpensive materials. Also, kit is provided which enables teachers to perform most of the experiments prescribed in the syllabus of the senior primary schools. Gradually, as the need was felt more acutely the programme was modified to train high school teachers at the district level, who would in turn train the unit-level primary teachers.

An NCERT team that visited the Centre, made the following suggestions:

i) The participating of schools must also be provide with kits so that the training given to teachers can actually be put to use.

ii) The batch of trainees at the taluka level should not exceed 40 in number.

iii) The laboratory fees collected in the schools should be utilised under headmaster's control) exclusively for laboratory equipment, rather than being given to the treasury, as was the current practice.

Two important points that emerge from the schemes discussed above (and various such other schemes), from the implementation point-of-view, are;

(i) The teacher training or enrichment programmes should have specific objectives, depending on the local needs or and should be 'sectoral' (science, language, etc) in nature.

(ii) A programme should be planned in totality i.e., it should not end merely with training, but should place equal, if not more, importance on follow-up, feed-back, provision of adequate resources and equipments at the unit level, and subsequent "refreshers" as and when required.

2) MEDIA-TEACHING PROGRAMMES

This programme is also operational in nature, and is an addition to the existing methods of instruction. (Some programmes, however, are of a substitutive nature, e.g. the programmed language lessons) Researches conducted in a number of developing countries, including India, have shown that the impact of television as a supplementary teaching aid, on various aspects of the development of young children such as information, attitudes, values, expectations and skills has been significant.

The Satellite Instructional Television Experiment (SITE) began educational television in 1975 covering 2,400 villages in six Indian States. The evaluation studies have shown that the morning broadcasts, which were exclusively for children between the ages of 5 and 12 years, were liked by children, contributed to an increased awareness, influenced their modes of thinking and also made them more inquisitive.

While the importance of television as an important aid in generating awareness and moulding attitudes -- especially in our caste and class-ridden society - can not be denied, it must be borne in mind that provision of televisions for schools in all villages of India (and their

effective maintenance, which at present is a problem even in schools in urban areas, is yet a distant objective and one can not expect any short-term leverage out of that programme. In comparison to television, radio has a much greater scope in educational innovations due to its almost universal availability in all parts of India. In fact, more than 7,000 programmes are already being broadcast for schools every year.

It is easy to see that the potential of media-programmes is high because of (i) their extensive coverage at feasible costs (ii) the small amount of formal discipline or preparation required (iii) their intrinsic 'curiosity' value for young children.

3) The Nutritious Meal Programme

This is an operational innovation involving addition to the existing system. It is now widely recognised that protein-calorie malnutrition in early life can lead to serious physical and mental retardation which is often irreversible. The implication for primary education is obvious.

While midday-meal scheme is now accepted by most of the states in India as an essential requisite for making the programme of compulsory primary education a success, the credit of being the pioneer goes to the Government of Tamil Nadu who started the scheme in 1956, initially on a voluntary basis, and assisted by CARE. Initially only one-third of the children were covered till the present Chief Minister Mr. M.G. Ramachandran announced on July 1, 1982 the mammoth Nutritious Free Noon Meal Scheme for all children under poverty line. The scheme

has given conspicuous boost to enrolment, and drop-outs have decreased considerably. The NMP, which presently benefits more than half-a-crore of children (age group 2-10 years) in Tamil Nadu, aims to achieve, in addition to satisfactory levels of nutrition and health, an improvement in enrolment, attendance, cleanliness and social habits. The Programme is monitored by a fairly comprehensive administration network operating under the overall control of the state governmet; with appropriate delegation of responsibilities at district/unit levels.

An outstanding feature of the programme is that a large part of the meal (total cost 45 paise per meal) is rice (100 gm per meal) which is the staple food of the region. It thus takes into account not only the food habits/tastes of children, but also assures continuity of the scheme. Another notable feature is the establishment of 'Central Kitchens', thus not only ensuring uniformity and maintenance of hygienic standards, but also facilitating control. The investment in this programme, which also generate substantial direct employment, is more than Rs.100 crores per year; being met by governmental funds as well as donations.

The factors that make this programme a success, are:

i) It is directed at the basic need of the poor people. This makes for its immediate acceptance.

ii) It is well-planned and administred through a state-supported, exclusive, administrative machinery.

iii) It obviously generates considerable involvement and support of community at large.

4) "Prahar Pathshalas" (A day consists of several "prahars" or parts, e.g. morning, forenoon, afternoon, etc)

This innovation, operational since it involved only one variable i.e, school-timing, was carried out by the Rajasthan Government. The "Prahar Pathshalas" (or, the 3-hour school) were meant for those children who were occupied in the economic activities at the home-front, and therefore, could not spare whole day as required in the traditional programme-design.

5) Experiment in Individualisation of Instruction (GCPI, Allahabad)

In 'conventional' schools, the teachers are bound by fixed syllabi, monthly schemes, of progress and specified length of 'periods' for various subjects which necessitates a division of the subject into units. This leaves little scope for flexibility and individual attention in instruction. The Government Central Pedagogical Institute (GCPI), Allahabad, conducted an experiment in which these hurdles were sought to be removed. The experiment proceeded along the following steps. First, the teachers were given a feel of working without the aid of a bell or a clock so that they could develop a sense of proportion/judgement. Then they were allotted to different classes/sections where they were to teach all the subjects (except some subjects like music, for which special teachers and timings were decided) and cover the given syllabi by a certain time period (months). Within this broad obligation, however, they were free to proportion the subject-wise time the way they liked. This approach was expected to give the teacher a better and more comprehensive idea about individual students and to help him maintain individual

records of progress. Unlike on the 'conventional' schools, the teacher here quickly reviewed a unit to find out the relatively brighter boys, who were then given higher lessons. Though the class-teacher himself seldom found sufficient time to give further help to backward (weak) students; however, once the weak students were identified through this flexible approach, they were then taken up in groups of 10-15 and provided remedial instruction by pupil-teachers and staff of the Institute.

Though the results of this experiment are not available the following useful points emerge from it:

i) A flexible approach to instruction can help identify the weaker students who can be separately provided with additional teaching effort. As an indirect benefit, the experiment also helps maintain - by virtue of simultaneous reinforcement of the weaker students - a sort of homogeniety in class level of learning which is essential for effective teaching.

ii) Since the same teacher teaches all the subjects to a particular section; a kind of rapport is built up which facilitates further interactions.

iii) The brighter students can be utilized as 'resource-persons' for the weaker sections of the class.

6) PREPARATION OF SYLLABI AND TEXT-BOOKS (KERALA)

Almost all the states in India have set-up state level bodies engaged, among other things, in the task of text-book designing and production. One of the earlier efforts is described here.

The Kerala government undertook the task of revising the school syllabus, in 1962-63, through the state Institute of Education, Trivandrum. The revision was felt to be inevitable in view of the continual and rapid expansion in the frontiers of knowledge, especially in the scientific and technological fields. The revised syllabus were implemented for grades I-V from 1970-71.

The notable features of this substantial effort are as follows:

i) All individuals/institutions interested in the course of educational, e.g. practising teachers, eminent educationalists, representatives of teachers' associations and departmental officers, were actively involved in the process of curriculam development as well as preparation of text-books. Thus, the acceptance of this major change was <u>simultaneously</u> ensured among multiple stake-holders.

ii) The new syllabi and text-books were first tried out in 25 to 30 experimental schools for one year, and the feed-back from them was duly utilized in giving a final shape to the curriculam/text-books. The importance of feed-back may seem obvious today, but this effort was undertaken more than two decades ago, and that time it was a significant idea to sort of "validate" the syllabi through experiments, seminars, etc.

iii) Enrichment material formed an integral part of the syllabi, and there was provision for diagnostic testing and remedial teaching of weaker students (especially in Mathematics), <u>as well as</u> for additional material to cater to the needs of the

gifted children. This extra, need-based emphasis is indeed a noteworthy part of the scheme.

iv) Teacher Handbooks were prepared by expert and supplied to all the teachers to enable them adapt faster to the revised curriculam.

7) SHIFT-SYSTEM IN KERALA

In 1945-46, the erstwhile Travancore Government passed an Act introducing compulsory primary education in a few talukas. Consequently, in order to meet the expanding demand, the so-called "shift-system" was introduced with the following main objectives/features:

i) To meet the growing demand for education by raising the teacher-pupil ratio in the initial stages, with gradual reduction during the subsequent stages of consolidation, and

ii) To keep the cost-per-pupil at a low level in the initial phase in order to achieve faster expansion with the limited funds available.

Under this scheme, the schools that were earlier functioning 5 days a week, 5 hours a day, were now run in two shifts, each for three-and-a half-hours in morning and evening, respectively, six days a week. Thus the total school hours were reduced from 25 to 21 per week. Teachers who now had to work more, were given a raise in salaries. However, in view of the administrative difficulty in regard to middle school teachers who still got the same salaries which would now be less than the salaries of the primary teachers, the timing for shift-schools were finally reduce to 12½ hours per week (2½ per day, 5 days a week). The merits and

demerits of the scheme are discussed below:

i) Resource Utilization: The main strategic objective; i.e. increased utilization of available facilities (teachers and school facilities) was undoubtedly achieved. The teacher-pupil ratio was very high in the initial period (58 in 1949-50), which was gradually reduced as expansion was consolidated (41 in 1958-59) (Compared with All-India teacher-pupil ratio which remained static of about 34 during this period). The cost per pupil was also kept low initially by low teacher salaries in addition to high teacher-pupil ratio. Gradually, the salaries were increased. In 1961-62, the shift system was removed for class IV, and continued for Classes I, II & III.

ii) Syllabi and Standards: It is often felt that the shift system resulted in falling standards. The syllabi and teaching methods were identical with the non-shift schools, but because of less time being available, the time devoted to individual subjects had to be cut down. While, language and Mathematics, were still given about the same time, subjects like General Science, Social Studies and Sewing and Music suffered greatly; their total time being reduced from about 4 hours (per week) each to about 1 hour each. Also, the time devoted to extra-curricular activities was far less in comparison with the non-shift schools. As per a study conducted by the State Institute of Education, Kerala, the general conclusion was that the ill effects, though not pronounced in the first two standards, became very prominent in the next two standards. -

Thus, it is evident that while the strategic objective was achieved, it resulted in unintended consequences. An NCERT team that visited such schools in Kerala in 1970, noted that "although the shift system is no substitute for the regular system, it can, as a matter of expediency be used with certain modifications, to expand primary education when funds are in short supply". The team made the following major suggestions.

i) The shift system should be introduced in a phased manner, beginning from Std. I and gradual extension to higher standards, particularly in areas where enrolement pressure continues to be high and funds are limited. Also, in economically backward areas where parents can't afford to "spare" children for full-time schooling (because of their economic utility) the system can be advantageously used.

ii) As a parallel effort, the syllabi for the shift-system have to be re-oriented with more emphasis a on functionality. Also, special methods have to be devised "whereby more of the content material can be taught to the children in lesser time".

iii) The teacher is the central factor of success of this scheme; hence appropriate training and orientation courses should be provided.

The shift-system, as an innovation, is undoubtedly worthy of emulation at national level in a country like India where resources are a major problem - though of course, the quality aspects needs equal consideration. However, the idea has not generated enough support for several reasons (J.P. Naik, 1965):

i) The teachers, as a group, have opposed the idea of introducing double-shifts in some schools, 'ostensibly on grounds of equally but mainly because, as a professional group, they consider it to be their duty to strive for better wages and less work--in keeping with the broad line adopted by every other professional trade union at present'.

ii) The elites do not favour the proposal since they can afford to and would prefer to, send their children for a full-time school. Even given that, they still oppose the system of shift-schools for the children of the masses (and not the elites), on, grounds of equality.

iii) The masses themselves present a dichotomy since they would prefer full-time schooling for younger children ('who are more a nuisance than a help at home'), but shift-system for higher classes because elder children have economic utility at home.

iv) The education authorities are themselves not keen since it reduces their patronage (number of teachers is less in the shift-system).

8) UNGRADED SCHOOLS

Evaluation of students' performance through periodic tests - especially annual examinations and Board examinations - and subsequent retention or promotion, is an important feature of the conventional programme design. Some studies have reported that failure in the examinations is one of the main reasons for dropping-out in the lower grades Consequently, many experiments are being tried to re-design the evaluated system. The innovation described here necessarily involves a strategic change (deletion).

The Ahmedabad Municipal School Board conducted an experiment in some of the primary schools, whereby children were given examinations at the end of Std. I and evaluated. However, the results were not given out, and all children were promoted to Std. II. In the examinations given at the end of Std. II it was found that 90% of the children on detention list after Std. I, had passed normally. Again they were all promoted to Std. III.

While its detailed results are not available, the experiment is significant since it points out the need to re-design the evaluation system. It may be noted that Gujarat Government has now abolished terminal examinations for Standards I and II throughout the state.

Some similar-though more strategic-experiments have altogether abolished the grade-system itself. They have no grades or classes, and the students proceed at their own pace, without any time-bound "learning-quotas", in accordance with the principle of continuous development. The whole syllabus is divided into units and children proceed from one unit to another according to their ability. The teacher has more freedom in organizing his classes and lessons. Several schools in tribal areas have implemented this plan and it has helped in reducing absenteeism and wastage.

The innovations discussed so far - whether operational or strategic- have all concentrated on any one variable in the education system, viz., teacher enrichment, aids-to-instruction, health, individualization of instruction, revision of syllabus, resource utilization and evaluation system, respectively. Of course, the experiments did involve implica-

tions on other variables also - for example, increased utilization of resources in the shift-system led to proportionate re-allocation of time to various subjects - but their primary objectives centered round only one of the variables. We now turn to some innovations which involve changes along more than one variable - infact, most of them involve a complete re-structuring of the entire programme-design and/or have the school on the whole as their focus.

## 9) EXPERIMENTS IN SINGLE-TEACHER SCHOOLS

As the name suggests, the single-teacher schools have only one teacher who discharge administrative as well as educational functions. According to the Fourth All-India Educational Survey conducted by NCERT in 1979, about one-third of all primary schools in the country were single-teacher schools. Typically, the single-teacher schools are mostly in tribal areas where habitations are small in size and are geographically scattered over large distances, thus making the provision of even one-teacher schools a just-about-feasible proposition.

Various studies have highlighted the multifarious problems affecting the performance of single-teacher schools. The major problems are:

i) Though it would be preferred to have teachers who belong to tribal areas and are familiar with the dialect, culture, etc. it is often difficult to find suitably educated tribals. (To that extent, therefore, it's obviously a vicious cycle).

ii) A non-tribal teacher in a tribal single-teacher school faces problems of isolation (the tribals customarily strangers), accommodation and a sense of general severing of links from the

"outside" world which he and his family are so used to. This lowers the teacher's moral and affects the quality of education.

iii) The conventional curriculum is too rigid to suit the interests of tribal children who are used to a free, wandering life-style. This results in low enrolement/high drop-outs, because even if, the teacher makes sincere efforts to deliver the 'prescribed' learning, the pupils find it too dull.

A variety of experiments have been done - mostly on a voluntary basis to tackle these problems. Two such experiments are described here. It may be noted that the focus in these experiments is the entire school/programme-design, rather than any specific part of it:

1. Action-Research Project of GBSK

The Gram Bal Shiksha Kendra (Centre for the Education of Rural Children) carried out an action-research project to tackle the single-teacher school problem. The project was part of a larger experimental efforts of GBSK, viz., Vikaswadi (or, Development Centre), at Kosbad in Maharashtra.

The experiment focussed on teaching methods and materials, and aimed to evolve new styles of educational interaction between the teacher and the taught. The GBSK took charge of ten single-teacher schools for intensive teaching-practice for a fortnight in the year. Four trainees of a primary training college were attached to one school during the fortnight. The teachers (trainees) tried to interest the

children in collecting waste materials and natural objects from which teaching-learning equipment could be prepared. They tested the children in literacy and numeracy and used remedial measures for the deficiencies that came to light. An old newspaper was spread out in a corner of the classroom.to demarcate the "collection centre" or the museum, where children arranged feathers, pebbles, shells, coloured glass pieces, match boxes etc. The teacher helped them talk about these things and to use them creatively e.g. sticks were used to learn measurements of length, breadth and height. Similarly, children were instructed to cut small twigs into pieces of equal length, and then arrange them into bundles of 10s, then 100s, and so on. Several such games for literacy and numeracy were evolved and practiced. However, as soon as the regular teacher came back with his traditional time table and curriculam, the children ceased to attend school.

The experiment highlights that unless the educational system incorporates flexibility of organisations, curricula, text-books and methodological approaches, the task of meaningful delivery of education among the tribals and other backward groups, would remain a difficult one.

2. Experiment at at Lurgoli

This experiment was divided into three "phases" - activity, knowledge and assignment. First, these were activity programmes such as school cleanliness, water storage, health parades, prayers, assemblies news-reading, news-writing, story-telling, dramatics, gardening, clay-work, paper work, games and sports. Children also go out in the villages and see institutions and places of educational and commercial importance. The second phase - knowledge - consists of actual class-

room instructions. This leads on to the third phase where assignments based on the matter taught, are given to pupil while the teacher is engaged in teaching other classes. Thus, these three phases, i.e., activities, knowledge and assignment are linked into one unit - one leading onto the next.

While detailed results of the experiment are not available, it is clear that the significance of the experiment lies in its attempt to generate an environment of active enthusiasm and involvement by engaging children in a variety of activities of recreational as well as educational value. This environment paves the way for a closer and more effective interaction during the next two phases, i.e. knowledge and assignment.

10) MOBILE EDUCATIONAL SHIBIRS

The Mobile Educational Shibirs of Maharashtra, which are a carry-over from the traditional "Gat Sammelans" for teachers, are organised by a group of 8-10 schools, generally situated within a radius of about 8 kilometres from a central school where the shibir is held, once a month, for a half-saturday and a full sundays.

Though the Shibir is a purely voluntary activity, it enjoys active involvement of teachers, students, community, the Gram Panchayat and the State Department of Education. The main objectives are:

i) Establishing intimate contact between the school and the community, and mobilising community support for the cause of education.

ii, Improving the competence of teachers and the scope of the school programme through co-operatively organised self-help and expert guidance.

iii) Locating community problems and solving them through discussion and mutual help.

It is obvious, thus, that the shibirs have multi-dimensional objectives. These are achieved through the following typical activities;

- Exhibition of articles donated by the community and locally prepared teaching aids;
- Demonstration lessons to improve class-room practices;
- Extensive discussions on topics of common interest
- Cultural programmes, visits to villages, Prabhat Pheri, Group March, Shramdan, etc.

The Shibir is thus a working forum for effective school and community involvement and improvement. A system that is self-energizing, the shibi offers immense potentialities in

- educating the community in better living
- supplementing resources available for education
- creating a need-based school programmes, and thus reducing wastage, stagnation and unemployment

ii) SCHOOL IMPROVEMENT CONFERENCE (SIC)

As the emphasis shifted from quantitative expansion to qualitative consolidation, it was widely felt that community support was necessary in the organization; maintenance and improvement of the school system, and to supplement the insufficient resources of the Government. Tamil Nadu

took the lead in 1958. The collection grew from Rs.25,000 from 76 schools in 1958 to Rs.12 crores in 1970 when more than 400 schools participated in the school improvement movement.

The programme function in two phases. In the first phase, the deficiencies of institutions are identified at a meeting of headmasters and teachers, convened by the Deputy Inspectors of Schools a few months before the SIC is to be held. Need-based targets are set for each school by the headmasters concerned, and are made known to the local community. An informal and personal approach adopted by teachers and officials facilitates this task a great deal.

In the second phase, i.e. the Conference itself, the contributions/ donations made by the community are publicised in various ways, e.g., exhibitions of articles received, releasing of "souvenirs" containing the list of donors, maintaining stock registers, etc. The audience at such conferences includes district educational officials, panchayat officials, students, members of the community, and officers of the Directorate and Secretariat.

Such conferences serve many useful purposes such as the following:

i) First and foremost, they generate awareness amidst the community regarding the needs of the schools and the significance of their support - financial and otherwise - to the government in meeting these needs.

ii) The element of "advertising" creates a spirit of healthy competition which results into contribution of a rich and varied nature - in addition to cash, a variety of articles are also donated.

iii) It generates a sense of involvement in the community towards the educational system, which, as research has conclusively shown, is one of the most important variables in the successful performance of primary educational system.

iv) Finally, of course, the programme helps relieve the government of some of its financial burden and makes the educational system relatively more self-sustaining.

12) INSTITUTIONAL PLANNING

The Rajasthan Government took the initiative to introduce institutional planning at the school level. The plan is basically a set of programmes or projects, developed and undertaken by the institution itself, on the basis of its felt needs and is financed by the resources of the institution as well as those available from the community. (To the extent community support is sought to be mobilised, the programme is similar to the school improvement conferences discussed earlier).

The plans are implemented through a variety of projects which have specific objectives; for example:

- Improvement of pass percentage by providing remedial help to weaker students;
- Behavioural counselling, to check deviant tendencies among children; and to foster good habits in them;
- Work experience programmes with emphasis on earning-while-learning.
- Increased utilization of available resources, followed by tapping of additional resources from the community, in order to

ensure adequate provision of physical as well as educational facilities.

Thus the institutional plans aim to achieve multiple objectives, all with a locally available resource-base.

13) THE MEADOW SCHOOL

The "Meadow School", a part of the 'Vikaswadi' experiment of GBSK (refered to earlier under 'Experiments in Single Teacher Schools'), evolved as a result of GBSK's concern for the low attendance of (tribal) children at the teacher-training institutions. The experiment involved a close observation of how the non-attending children spent their time, and then evolution of a relevant learning plan which would help the children to educate themselves without attending a formal school but with adequate guidance and stimulus from the teachers. Here the school went to the pupils, so to say, and the teacher-taught interaction took place while the children would take the cattle out to graze in the meadows. (Hence the name 'Meadow School')

The learning activities consisted of;

i) promoting physical exercises

ii) nature-study for understanding the basic concepts of geography, biology, etc.

iii) language-development through oral work like stories, songs, free conversation, etc., and

iv) grasping number concepts by counting different objects, finding out one another's age, measuring height and weights etc.

The most characteristic feature of the innovation lies in the fact that

there was no effort to force learning on to the pupils, rather the teachers tried to capitalize on the natural environment of the children, and on the various events as and when they occured, in order to impart related knowledge in an informal, yet effective, manner. For example, once the children killed a snake, the teacher used this occasion to give information about various types of snakes, and then took the curious children to a museum at the Vikaswadi, where the knowledge was consolidated with the help of charts and specimen. The curiosity thus developed led the children to bury the snake and after some days, exhume it to discover the vertebrae. Not only this, they repeated the exercise to double-check on the "discovery".

Similarly, excursion were organized and it was found that this helped develop orderliness and group-spirit among the children.

Thus, the teacher had full freedom to adopt any techniques he liked. There was no attempt to "teach", per se, but every possible occasion was utilized for stimulating enquiry and enthusiasm to know something new.

While the Meadow School is undoubtedly an extraordinary experiment, (and is all the more striking because it occured more than two decades ago when terms like non-formal education, etc., had not appeared on the educational harizon), it requires teachers who are not only highly motivated but are also able to capitalize on a wide variety of situations and relate them to branches of formal education. Given that, the experiment has a great potential.

## 14) BASIC EDUCATION

Basic Education model, propounded by Mahatma Gandhi in the early 30s, was adopted as a model of mass elementary education after Independence. The main features of this model are briefly delineated below:

(i) In contrast to the literacy, bookish education prevalent in the pre-independence India, Basic Education was to be built around mannual labour and socially useful productive work. It was meant to prepare a child for a vocation and for life. Hence, CRAFT has a central place in the Basic curriculam. Education is meant to be in, and through, craft. Thus, learning by doing is the essence of Basic Education methodology.

(ii) The system was to be self-sustaining. Gandhiji strongly emphasised that the 'acid test' for the success of the model would be in its ability to meet the entire expenditure - including teachers' salaries.

(iii) The model proposed free and compulsory education for seven years, which covers all the subjects upto matriculation, plus a vocation (craft). However, in addition to developing children into intelligent and self-supporting craftsman, the model also aimed to create, in the long run, a new "social order" by inculcating in the children the dignity of labour and appropriate social attitudes. To that extent, the model included a training in citizenship.

After the initial enthusiasm with the model, it was given up as being unviable. It is important to note the variety of views prevailing on why the Basic Education model failed to develop as the new system of mass

elementary education. We will confine ourselves to the major criticisms varied by a number of educationists and other people over the years:

1. Apathy and ignorance of the administration, poor quality of teachers and teacher training resulting in lifeless traditional classroom teaching, inefficient craft teaching in Basic training colleges and schools, inadequate resources for land, buildings, craft equipment, etc. are cited as the major systemic inadequacies responsible for the model's failure.

2. Many people hold the view (J.P. Naik being the most prominent amongst them) that the major reason why the model failed lies in the elites' apathy for mannual labour, fascination for book-centred literacy education, social and psychological resistances to the introduction of mannual labour and productive work into the school curriculam, and so on.

3. The above view-point is countered by many who assert that the masses themselves, for whom the model was designed in essence, were reluctant and even resentful towards the model since it did not link well with the 'conventional' channels of higher education, and thus could not facilitate realisation of their obvious ambitions of improving their lot by becoming doctors, engineers, etc. Thus, as an innovation, Basic Education failed because it did not relate well with the ambient social reality, i.e. the increasing industrialisation and the creation of jobs for which formal degrees were (are) the essential pre-requisite.

4. The 'design defects' often pointed out as being responsible for the model's failure, include the following:

   i) seven years of full-time schooling, which gives rise to by-and-large the same problems as face the "traditional" system, viz., wastage, etc.

   ii) the emphasis on craft necessitated small teacher - pupil ratio's and highly trained teachers which again made the system an expensive one - not to mention its inability to achieve its main aim of being financially self-sufficient. The capital and maintenance costs of craft equipment, raw materials, etc. added to this inadequacy of the model in becoming a system of mass education.

   iii) As mentioned earlier, the model could not be do with higher levels of education without completely compromising its fundamental tenets; and thus, was perceived by many as being a block in the way of their growth.

15) NON-FORMAL EDUCATION (NFE)

The programmes of non-formal education grew out of the growing realization that the "formal system" can not be expected to cater to the educational needs of the great variety of clients that there are, for reasons of inadequate facilities and resources, as also (and more importantly) due to its rigidity of curriculam, timings, sequential nature of courses, and single-point entry. As has been discussed earlier, one of the major operational problems continues to be that of wastage The concept of NFE grew out of the recommendations of Education Commission

(1966), Central Advisory Board of Education (CABE, 1974), as well as many prominent educationists, and it was widely felt that a 'parallel' educational system needed to be developed to especially cater to the left-outs and the drop-outs in the age-groups 6-11 and 11-14 years.

Non-formal education has been defined as any organised educational activity outside the established formal system, that is intended to serve a specific clientale. It is important to note that NFE is a purposively organised channel of education, and, though outside the 'formal' system, it often utilises resources like teachers, school premises, etc. of the latter. The NFE programmes presently operating in the country are of a large variety e.g. adult education programmes, correspondence courses, pre-school day-care centres, vocational training courses, and so on; but since we are concerned here with primary/elementary education we will limit the discussion to two experiments which typify the various programmes being run for children in the age-group 6-14 years.

(1) The Bhumiadhar Centre: Initiated by NCERT in 1974, in collaboration with the 'State Department of Education, and experts in field of agriculture, health, nutrition and social welfare, the Bhumiadhar Project in the Bhumiadhar village of Nainital district in U.P., had the following objectives:

i) to motivate the left-outs/drop-outs in the age-group 6-14 years to join the centre and, thus, to enable them to later join the formal system in Std. VI or IX, as the case may be;

ii) to develop functional numeracy and literacy amongst children;

iii) to develop an expertise in children in regard to the work-experience and their occupation so as to make them self-sufficient, and

iv) to develop healthy attitudes, sense of citizenship and a scientific temper.

A special feature of the project was its emphasis on programmes of Community Development and Work Experience. This was apparently necessitated because of the high poverty level of the village and it was felt that linking NFE with programmes of economic development was necessary in order to motivate parents to send their children to the NFE centre and ensure their continued attendance. Thus, a variety of programmes, viz., introduction of improved varieties of wheat, onions, etc., mushroom cultivation, construction of compost pits and roads, organization of a Mahila Mandal (Ladies' Forum) and Youth Forum, ceramic work, mat-weaving, etc; were integrated within the fold of the project. The centre was established through the voluntary efforts of community member.

Some of the experiences gathered during the project are summarised below:

i) It is necessary to relate NFE for children (6-14) to community development programmes and work experience.

ii) At the initial stage, community leaders may be taken into confidence for they can play a vital role in generating acceptance of the programme by others.

iii) The teacher needs to be devoted and has to employ persuasion, patience, and commitment to ensure meaningful participation by children;

iv) It was felt that on-the-spot training of teachers is better

than "theoretical lectures" in training institutes as was the initial idea. Some holds for instructional material also, which though prepared a-priori, needs to be flexible and modifiable according to local needs.

v) The centre needs to have autonomy to examine the students and issue the necessary certificates to enable their subsequent entry into the formal system.

While the NCERT, perhaps encouraged by the success of its project at Bhumiadhar, recommended that all NFE centres should be similarly integratively linked with work experience and community development programmes, many others feel that this approach would not be feasible on a mass level and, thus, might jeopardize the very objective of NFE, i.e. mass coverage of left-outs/drop-outs for adoption of multiple entry. In fact, almost none of the more-than 100 NFE centres being run by NCERT in various places, has been able to initiate and sustain programmes for economic development. Another reason is that though a pilot project, Bhumiadhar centre was given a special support by NCERT in terms of staff involvement, resources, etc. which limits its replicability in other similar places where obviously it may not be possible for bodies like th NCERT to get involved to a similar extent.

Subsequent entry into class VI/IX being a (professed) primary objective of the project, some observershhave questioned the project's break with the traditional school-syllabus and emphasis on work-experience, etc. and have asserted that it is impossible to simultaneously pursue both objectives.

2) The Madhya Pradesh Model

The Madhya Pradesh model attempts to provide part-time instruction to children (left-outs/drop-outs) during convenient hours, and provides them an opportunity to re-enter the formal system. To that extent, it is similar to the Bhumiadhar approach. However, whereas in the Bhumiadhar project, the emphasis-in practice - was on community development and work experience, the M.P. model has multiple entry as the role-theoretical or practical - objective. Under this model, the entire curriculam of five year primary course is condensed into a 2 year-course consisting of 18 units. The target group is children of 9-14 years age. Students who complete these units take the final (class V) examination along with their full-time 'formal' school counterparts. Teachers remuneration includes monetary incentives based on the attendance levels as well as the number of students who are able to pass the final examination every year.

This model has proved to be a success and it is envisaged that this would be the main model of NFE henceforth. It may be useful to compare it with the Bhumiadhar Model. Firstly, unlike the Bhumiadhar Project, it does not require any special preparation on the part of teachers since the curriculam is essentially the same as in the regular formal system. Secondly, the M.P. model has a clear, unambiguous goal, i.e. passing the regular Std. V examination. Also, the incentive system facilitates better achievement of this objective. It is evident, thus, that in terms of human and material resources, NFE centres based on M.P. model are likely to be more viable, and also more successful in achieving re-entry of left-outs/drop-outs which is the major professed objective of non-formal education programmes.

To sum up the idea of non-formal education has, as an innovation. The following significant features:

i) It recognizes the incongruence between the rigidity of the formal educational system on the one hand and the economic realities of the client system, which can not afford a full-time instruction, on the other.

ii) It recognizes, simultaneously, that parents do want to send their children to school, provided the above-mentioned incongruence is taken care of. And, that, apathy is not the real cause - or not a major one, in any case - of low enrolment and/or high drop-outs.

iii) It attempts to keep the curriculam flexible and tries to adopt it to local needs, within the overall objective of facilitating re-entry into the formal system.

## 16) ON EVALUATION OF INNOVATIONS IN PRIMARY EDUCATION

We have discussed so far, some of the major "innovations" in the field of primary/elementary education in India, which, though by no means exhaustive, can be said to be a fair sample of the variety of innovations operative everywhere. We now turn in this concluding section to the ways in which such innovations can be 'evaluated', and finally also discuss what features or characteristics of 'the innovation, the innovators, the receivers, etc., make it a 'success'.

Any innovation involves, fundamentally, a set of one or more independent variables (existing of new) which are sought to be manipulated (added, deleted or re-structured) in order to achieve their hypothesised

effect on the dependent variable(s) which is usually some aspect of performance reflected in a variety of indicators. Taking this view of innovations, the most appropriate way of evaluating any innovation would be, to employ the well known control-group method. That is, implementing the innovation on an experimental basis (as was done in the Bhumiadhar Pilot project by NCERT and comparing the results with those obtaining in a control group where the independent variables in question were not introduced. However, though such mathematical precision would obviously be the ideal thing to achieve, it is almost always infeasible to employ, particularly in the field of educational systems. There are mainly 3 reasons for this. First, this method is very time-consuming and it requires substantial resources - human as well as material. And, if employed, the experimental evaluation may well turn out to be more expensive than the innovation's implementation itself. Second, it is often not possible to control variables/conditions with a precision anywhere near the desired level, when large number of human minds are involved. In some situations, of course, the subjects can serve as their own controls as was the case in the Nutritious Meal Programme where the effects of nutrition (independent variable) could be assessed fairly accurately by comparing the subjects' pre-nutrition enrolment figures (or the base-line performance) with those obtaining after the programme was implemented. But this can not always be done. Finally, another significant problem with experimental evaluation is what is known as the "How Thorne Effect", the likelihood that the conditions in which an experiment is conducted will significantly distort the results. For example, as was the case in NCERT's Bhumiadhar project, the persons involved in the innovation at various stages

from conception to implementation, may be conscious of the fact that they are at the centre of attention, and thus they would very likely put in extra efforts to make the innovation a success. This has, by the way, been one of the major criticisms of the Bhumiadhar Project.

Then, how do we evaluate innovations? Another approach, which is not necessarily wholly different from the above mentioned method, is to compare the results with the objectives the innovation had placed before itself. In order that any evaluation in this manner be useful, it is imperative that the objectives of the innovation be defined as precisely and unambiguously as possible. A typical problem in many innovation discussed earlier is that of conflicting or mutually incompatable objectives. For example, in both the Bhumiadhar Project and the Basic Education model, one of the major objectives - explicit in the former, and implicit in the latter - is the subsequent entry of the students in the conventional secondary schools. However, their substantial emphasis on work-experience/crafts conflicts with this objective.

Another problem typically encountered is that in many innovations the improvements are not apparent right away but take a long time. For example, in the experiment on "Ungraded Schools", which the effects on enrolment can be seen relatively quickly, it takes 2-3 years to discuss the effects on the quality of learning being retained by the students who are promoted regardless of their performance.

However, it is often possible to evaluate an innovation on the basis an estimation of the extent to which it achieves its professed objectives.

We have earlier discussed a variety of innovations, some of which (notably the Nutritious Meal Programme, the Shift System, Centralised preparation of text-books) have succeeded in achieving their objectives, while some have obviously failed which are the main factors which make an innovation a success or otherwise and which can, conceptually, be applied to innovations of all kind? With reference to our earlier discussion, we can summarize these factors as below:

i) Goal clarity and its proper horizontal and vertical communication.

ii) Congruence of the innovation with the existing practices of the target group, and other aspects of the innovation design

iii) Degree of financial and administrative support from the concerned organisations/agencies, as well as the nature and extent of community support required and actually achieved by the innovation.

iv) Degree of competence and commitment of those who implement the innovation.

v) Adequacy of follow-up/feed-back mechanisms

Goal clarity is perhaps the most important factor affecting the success of an innovation, as we have already discussed for Basic Education and Bhumiadhar Project. It is not enough that the goals be "laudable" or socially desirable; what is more important that they must be internally consistent, and also in keeping with the relatives of the current environment. This is one major reason behind the success of Nutritious Meal Programme, Meadow Schools, etc.: They had clear-cut, even if limited,

goals, Congruence with the currently obtaining practices of the target group is also very important. This is amply reflected in programmes, like preparation of place-specific text books, etc. Availability of adequate resources is of obvious importance, and since the State funds are limited many innovations have lately been incorporating mechanisms of local fund generation, asis the case, for example, in Mobile Educational Shibirs and School Improvement Conferences.

Further, it is essential that those who are entrusted with the task of implementing changes be competent to do so, and have a sense of commitment to the cause. Teacher Training Programmes, for example, basically aimed at ensuring that teacher who are the actual 'agents of learning' be themselves up-to-date with the changing frontiers of knowledge. Finally, the task of a change-agent is not over with the first successful trial run. In order to ensure that the proposed change is increasingly well accepted by the target group and in fact, become an integral part of it, it is imperative to establish suitable feed-back/ follow-up mechanisms; which may, among other things, point out the necessity for some modifications in the design of the innovation. This is clearly demonstrated by the continual processes of syllabi development. As the profile of the client-group changes, the earlier model of change may itself require modifications.

# APPENDIX

## Selected Educational Statistics

## Exhibit 1

### Elementary Education : Schools, Teachers & Students

(in 000's)

| Year | Primary[1] | | | Middle[2] | | |
|---|---|---|---|---|---|---|
| | Schools | Teachers | Pupils | Schools | Teachers | Pupils |
| 1950-51 | 210 | 538 | 18,294 | 14 | 85 | 2,072 |
| 1955-56 | 278 | 691 | 22,920 | 22 | 148 | 3,813 |
| 1960-61 | 330 | 742 | 26,642 | 50 | 345 | 10,611 |
| 1965-66 | 391 | 944 | 37,219 | 76 | 528 | 16,725 |
| 1975-76* | 470 | 1,243 | N.A. | 106 | 778 | 23,642 |
| 1979-80* | 478 | 1,312 | 48,972 | 115 | 835 | 26,959 |

* Provisional

1 Includes Junior Basic/Basic Primary Schools (not pre-primary)

2 Includes Senior Basic/Junior High Schools

SOURCE: "Basic statistics relating to the Indian Economy", Central Statistical Organization, Ministry of Planning, New Delhi, Yearly Publications

51 : 361

61 : 439

71 :

81 : 658

Exhibit 2

Access to Primary Schools in Rural India

| S. No. | Population Slab | Total No. of Habitations in the Slab | Total Population in the Slab | No. of habitations & (% of slab population) according to access to Primary Schools | | | |
|---|---|---|---|---|---|---|---|
| | | | | A | B | C | D |
| | | | (Lakhs) | | | | |
| 1. | 5000 & Above | 4,407 | 318 | 4,334 (98.46) | 31 (0.65) | 24 (0.52) | 18 (0.37) |
| 2. | 2000-4999 | 35,069 | 996 | 33,844 (96.65) | 793 (2.09) | 269 (0.79) | 172 (0.47) |
| 3. | 1000-1999 | 91,799 | 1245 | 85,730 (93.69) | 4,278 (4.40) | 1,323 (1.39) | 468 (0.52) |
| 4. | 500-999 | 173,727 | 1217 | 141,437 (82.50) | 23,186 (12.56) | 6,969 (3.81) | 2,135 (1.13) |
| 5. | 400-499 | 68,365 | 304 | 45,469 (66.63) | 15,837 (23.09) | 5,283 (7.67) | 1,776 (2.61) |
| 6. | 300-399 | 93,340 | 321 | 49,977 (54.14) | 29,378 (31.15) | 10,275 (10.80) | 3,710 (3.91) |
| 7. | 200-299 | 131,630 | 321 | 46,961 (36.71) | 55,480 (41.81) | 20,356 (15.09) | 8,833 (6.37) |
| 8. | 100-199 | 183,414 | 265 | 33,124 (18.79) | 95,027 (51.29) | 36,586 (19.74) | 18,677 (10.18) |
| 9. | Below 100 | 182,913 | 103 | 10,581 (7.07) | 98,531 (54.63) | 43,603 (23.21) | 30,198 (15.09) |
| | ALL SLABS | 964,664 | 5092 | 451,457 (78.53) | 322,541 (14.49) | 124,679 (5.03) | 65,987 (2.15) |

SOURCE: Fourth All-India Educational Survey NCERT, 1982 (Based on Table 11)

KEY:
With a Primary School
A - In the habitation
B - In a neighboring habitation within a distance of 1.0 km.
C - (-do-) 1.1 km to 2.0 km
D - (-do-) more than 2.0 km.

Exhibit 3

## Distributions of Primary Schools according to Type of Building

(1978-79)

| S. No. | Type of Building | Area-wise No. of Schools | | | % of Totals | | |
|---|---|---|---|---|---|---|---|
| | | Total | Rural | Urban | Total | Rural | Urban |
| 1. | Open Space | 40,730 | 39,606 | 1,124 | 8.58 | 9.18 | 2.61 |
| 2. | Tents or Thatched huts | 48,275 | 46,817 | 1,458 | 10.17 | 10.84 | 3.39 |
| 3. | Kuchha Building | 101,352 | 97,744 | 3,608 | 21.35 | 22.65 | 8.38 |
| 4. | Partly Pakha Building | 61,418 | 55,291 | 6,127 | 12.94 | 12.81 | 14.24 |
| 5. | Pakha Building | 222,861 | 192,144 | 30,717 | 46.96 | 44.52 | 71.38 |
| | ALL TYPES | 474,636 | 431,602 | 43,034 | 100.00 | 100.00 | 100.00 |

## Exhibit .4

State-Wise Distribution of Primary Sections according to Pupil-Teacher Ratio

| S. No. | STATE/U.T. | No. of primary sections with pupil-teacher ratio | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Below 10 | 10-19 | 20-29 | 30-39 | 40-49 | 50 & Above | All Ratios |
| 1. | Andhra Pradesh | 484 | 1,434 | 4,537 | 10,152 | 13,927 | 14,588 | 45,122 |
| 2. | Assam | 164 | 3,051 | 8,357 | 5,941 | 2,841 | 2,078 | 22,450 |
| 3. | Bihar | 307 | 3,521 | 13,156 | 20,375 | 12,843 | 10,634 | 60,836 |
| 4. | Gujarat | 107 | 638 | 2,920 | 6,887 | 6,798 | 6,078 | 23,428 |
| 5. | Haryana | 22 | 173 | 1,104 | 2,950 | 1,972 | 965 | 7,186 |
| 6. | Himachal Pradesh | 329 | 1,182 | 1,392 | 1,284 | 868 | 809 | 5,864 |
| 7. | Jammu & Kashmir | 666 | 2,777 | 2,668 | 1,487 | 847 | 395 | 9,340 |
| 8. | Karnataka | 265 | 1,044 | 3,719 | 7,326 | 8,085 | 13,528 | 33,867 |
| 9. | Kerala | 75 | 443 | 2,872 | 3,418 | 1,629 | 895 | 9,332 |
| 10. | Madhya Pradesh | 823 | 6,480 | 15,474 | 15,475 | 10,602 | 8,618 | 57,472 |
| 11. | Maharashtra | 787 | 2,716 | 8,504 | 15,611 | 12,968 | 9,862 | 50,449 |
| 12. | Manipur | 888 | 1,575 | 810 | 274 | 106 | 56 | 3,709 |
| 13. | Meghalaya | 32 | 487 | 1,331 | 937 | 446 | 431 | 3,664 |
| 14. | Nagaland | 127 | 594 | 311 | 98 | 44 | 20 | 1,194 |
| 15. | Orissa | 294 | 3,499 | 10,418 | 11,368 | 5,332 | 3,684 | 34,595 |
| 16. | Punjab | 134 | 579 | 2,182 | 4,603 | 2,969 | 3,308 | 13,775 |
| 17. | Rajasthan | 360 | 1,444 | 5,492 | 8,747 | 6,212 | 4,129 | 26,384 |
| 18. | Sikkim | 10 | 89 | 156 | 70 | 18 | 10 | 363 |
| 19. | Tamil Nadu | 808 | 631 | 6,976 | 12,731 | 7,399 | 4,867 | 33,402 |
| 20. | Tripura | 80 | 284 | 467 | 408 | 324 | 323 | 1,886 |
| 21. | Uttar Pradesh | 723 | 3,982 | 13,428 | 26,548 | 15,974 | 9,450 | 70,105 |
| 22. | West Bengal | 187 | 2,294 | 11,454 | 18,422 | 12,162 | 5,748 | 50,267 |
| 23. | A & N Islands | 3 | 87 | 90 | 20 | 3 | 3 | 206 |
| 24. | Arunachal Pradesh | 16 | 118 | 290 | 217 | 123 | 101 | 865 |
| 25. | Chandigarh | 1 | 10 | 30 | 41 | 6 | 6 | 104 |
| 26. | Dadra & Nagar Haveli | 0 | 0 | 7 | 41 | 39 | 70 | 157 |
| 27. | Delhi | 4 | 48 | 425 | 924 | 320 | 135 | 1,856 |
| 28. | Goa, Daman & Diu | 20 | 286 | 426 | 331 | 91 | 27 | 1,181 |
| 29. | Lakshadweep | 2 | 2 | 3 | 7 | 7 | 3 | 24 |
| 30. | Mizoram | 2 | 58 | 143 | 164 | 97 | 73 | 537 |
| 31. | Pondicherry | 3 | 39 | 118 | 119 | 70 | 41 | 390 |
| | ALL-INDIA | ,723 | 39,475 | 119,270 | 176,994 | 125,123 | 101,425 | 570,010 |

SOURCE: Fourth All-India Educational Survey, NCERT, 1982,
Based on Table 136

Exhibit 5

Distribution of Primary Sections according to Pupil-Teacher Ratio
(All India)

| Pupil-Teacher Ratio | No. of Primary Sections | | | % of respective totals | | |
|---|---|---|---|---|---|---|
| | Total | Rural | Urban | Total | Rural | Urban |
| Below 10 | 7,723 | 6,916 | 807 | 1.4 | 1.4 | 1.3 |
| 10-14 | 12,202 | 10,786 | 1,416 | 2.1 | 2.1 | 2.3 |
| 15-19 | 27,273 | 24,651 | 2,622 | 4.8 | 4.8 | 4.3 |
| 20-24 | 50,667 | 46,164 | 4,503 | 8.9 | 9.1 | 7.3 |
| 25-29 | 68,603 | 61,792 | 6,811 | 12.0 | 12.2 | 11.0 |
| 30-34 | 87,615 | 78,313 | 9,302 | 15.4 | 15.4 | 15.0 |
| 35-39 | 89,379 | 79,301 | 10,078 | 15.7 | 15.6 | 16.3 |
| 40-44 | 75,545 | 66,626 | 8,919 | 13.2 | 13.1 | 14.4 |
| 45-49 | 49,578 | 42,835 | 6,743 | 8.7 | 8.4 | 10.9 |
| 50 & Above | 101,425 | 90,780 | 10,645 | 17.8 | 17.9 | 17.2 |
| ALL-RATIOS | 570,010 | 508,164 | 61,846 | 100.00 | 100.00 | 100.00 |

## Exhibit 6

### Investment in Elementary Education In India

(Rs. in crores)

| Plan | Expenditure on Elementary Education (1) | Total Exp. on Education (2) | (1) as % of (2) |
|---|---|---|---|
| I | 85 | 153 | 56 |
| II | 95 | 273 | 35 |
| III | 178 | 589 | 30 |
| Annual Plan | 65 | 322 | 20 |
| IV | 235 | 823 | 29 |
| V | 410 | 1285 | 32 |
| VI | 900 | 1985 | 46 |

SOURCE: Eastern Economist Annual 1980, Table II, Page 89.

Exhibit 7

Enrolment in Elementary Education in India (1950-85)

| Description | | 1950-51 | 1955-56 | 1960-61 | 1965-66 | 1970-71 (Approximate) | 1975-76 (Approximate) | 1979-80 (Approximate) | 1984-85 (TARGETS) (Approximate) |
|---|---|---|---|---|---|---|---|---|---|
| A. ENROLMENT Nos. (Lacs) | | | | | | | | | |
| Grade I-V | Boys | 138 | 175 | 236 | 322 | | 396 | 438 | 485 |
| | Girls | 54 | 77 | 114 | 183 | | 251 | 272 | 342 |
| | Total | 192 | 252 | 350 | 505 | | 647 | 710 | 827 |
| Grade VI-VIII | Boys | 26 | 34 | 51 | 77 | | 109 | 130 | 166 |
| | Girls | 5 | 9 | 16 | 28 | | 50 | 65 | 92 |
| | Total | 31 | 43 | 67 | 105 | | 159 | 195 | 258 |
| B. ENROLMENT RATIOS (%) | | | | | | | | | |
| Grade I-V | Boys | 60.6 | 68.2 | 82.6 | 96.3 | | 99.0 | 100.2 | 108.1 |
| | Girls | 24.8 | 31.0 | 41.4 | 56.5 | | 67.6 | 65.9 | 81.5 |
| | Total | 43.1 | 50.0 | 62.4 | 76.7 | | 83.9 | 83.6 | 95.2 |
| Grade VI-VIII | Boys | 20.6 | 24.6 | 33.2 | 44.2 | | 48.9 | 52.0 | 63.1 |
| | Girls | 4.6 | 6.6 | 11.3 | 17.0 | | 24.1 | 27.7 | 36.8 |
| | Total | 12.9 | 15.9 | 22.5 | 30.8 | | 36.9 | 40.2 | 50.3 |

* As percentages of total population in the respective age-groups, viz., 6-11 (Grade I-V), 11-14 (Grade VI-VIII) and 6-14 (Grade I-VIII).

1. Date for 1950-76 taken from "Basic Statistics Relating to Indian Economy" (1950-51 to 1975-76).
2. Date for 1979-80 and 1984-85 (T) from Sixth Five-Year Plan (Table 21.1)

## Exhibit 8

### Official and Actual Enrolment Ratios in Elementary Education

(In %)

| Year | Ratio : | OFFICIAL RATIOS | | | ACTUAL RATIOS | | |
|---|---|---|---|---|---|---|---|
| | Std. : | I-V | VI-VIII | I-VIII | I-V | VI-VIII | I-VIII |
| | Age Group | (6-11) | (11-14) | (6-14) | (6-11) | (11-14) | (6-14) |
| 1950-51 | | 43.1 | 12.9 | 32.5 | 32.7 | 7.0 | 28.1 |
| 1975-76 | | 83.8 | 36.7 | 67.0 | 62.6 | 21.7 | 54.7 |

SOURCE: John Kurien, "Elementary Education in India : Myth Reality & Alternative' Vikas Publishing House, New Delhi, 1983, (p.14).

Exhibit 9

Area-wise and Sex-wise Distribution of Enrolment in Std. I-V (1978-79)

(%)

| AREA | SEX | Std.I | Std.II | Std.III | Std.IV | Std.V | TOTAL |
|---|---|---|---|---|---|---|---|
| RURAL | Boys | 31.72 | 23.19 | 18.49 | 14.67 | 11.94 | 100.00 |
| | Girls | 35.70 | 23.00 | 17.91 | 13.41 | 9.98 | 100.00 |
| | Total | 33.16 | 23.12 | 18.28 | 14.21 | 11.23 | 100.00 |
| URBAN | Boys | 25.56 | 22.08 | 19.50 | 17.04 | 15.82 | 100.00 |
| | Girls | 26.51 | 22.45 | 19.30 | 16.76 | 14.98 | 100.00 |
| | Total | 25.99 | 22.24 | 19.41 | 16.92 | 15.45 | 100.00 |
| TOTAL | Boys | 30.38 | 22.95 | 18.71 | 15.18 | 12.18 | 100.00 |
| | Girls | 33.09 | 22.85 | 18.31 | 14.36 | 11.40 | 100.00 |
| | Total | 31.42 | 22.91 | 18.55 | 14.87 | 12.25 | 100.00 |

SOURCE: Fourth All-India Educational Survey, NCERT, (Statement 5.29)

Exhibit 10

Proportion of Girls in Std. I-V (1978-79)

| Standard | Proportion of Girls (%) | | |
|---|---|---|---|
| | RURAL | URBAN | ALL AREAS |
| I | 38.95 | 45.63 | 40.30 |
| II | 36.00 | 45.15 | 38.16 |
| III | 35.45 | 44.51 | 37.75 |
| IV | 34.14 | 44.34 | 36.96 |
| V | 32.15 | 43.39 | 35.59 |
| ALL GRADES | 36.18 | 44.75 | 38.26 |

SOURCE: Based on Statement 5.29, Fourth All-India Educational Survey, NCERT, 1982.

Exhibit 11

Class-wise Composition of Enrolment (Grade I-V)

(%)

| STANDARD | 1950-51 | 1978-79 |
|---|---|---|
| I | 36.3 | 31.4 |
| II | 22.6 | 22.9 |
| III | 17.5 | 18.6 |
| IV | 13.7 | 14.9 |
| V | 9.9 | 12.2 |
| TOTAL | 100.0 | 100.0 |

Exhibit 12

% of Scheduled Caste and Scheduled Tribe Enrolment in Class (I-V) in 1978-79

| Class | % of SC Enrolment | | | % of ST Enrolment | | | % of (SC+ST) Enrolment | | |
|---|---|---|---|---|---|---|---|---|---|
| | Rural | Urban | Total | Rural | Urban | Total | Rural | Urban | Total |
| I | 17.01 | 13.83 | 16.37 | 9.77 | 2.39 | 8.29 | 26.78 | 16.22 | 24.66 |
| II | 15.69 | 12.77 | 15.00 | 7.77 | 2.05 | 6.42 | 23.46 | 14.82 | 21.42 |
| III | 15.15 | 12.07 | 14.37 | 6.77 | 1.98 | 5.55 | 21.92 | 14.05 | 19.92 |
| IV | 14.14 | 11.31 | 13.36 | 5.57 | 1.79 | 4.52 | 19.71 | 13.10 | 17.88 |
| V | 13.03 | 10.48 | 12.25 | 5.08 | 1.91 | 4.11 | 18.11 | 12.39 | 16.36 |
| Class I-V | 15.51 | 12.31 | 14.73 | 7.64 | 2.06 | 6.28 | 23.15 | 14.37 | 21.01 |

(As percentage of total enrolment in the respective Classes)

SOURCE: Fourth All India Educational Survey, NCERT, 1982, Statements 5.31 & 5.32

## EXHIBIT 13

### State-Wise Enrolment in 1978-79

| STATE | Population (1981) (Lakhs) | Enrolment in Grade I-V (Lakhs) | Enrolment in Age Group 6-11 (Lakhs) | Enrolment Ratio in Age-Group 6-11 (%) | % of SCs in Population (1971) | % of SCs in Enrolment Grade (I-V) | % of Girls in Classes (I-V) |
|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| 1. Uttar Pradesh | 1108.58 | 89.89 | 71.18 | 53.40 | 21.00 | 17.88 | 30.43 |
| 2. Bihar | 698.23 | 63.08 | 46.29 | 54.37 | 14.11 | 10.06 | 28.94 |
| 3. Maharashtra | 626.94 | 78.73 | 59.12 | 79.39 | 6.00 | 11.96 | 42.56 |
| 4. West Bengal | 544.86 | 57.78 | 48.45 | 67.60 | 19.90 | 18.59 | 42.02 |
| 5. Andhra Pradesh | 534.04 | 49.25 | 38.63 | 60.17 | 13.27 | 17.98 | 41.10 |
| 6. Madhya Pradesh | 521.32 | 44.49 | 34.56 | 47.71 | 13.09 | 12.28 | 31.86 |
| 7. Tamil Nadu | 482.97 | 61.21 | 48.79 | 87.63 | 17.76 | 19.96 | 44.87 |
| 8. Karnataka | 370.43 | 40.98 | 33.69 | 75.05 | 13.14 | 13.04 | 43.17 |
| 9. Rajasthan | 341.03 | 25.75 | 19.84 | 45.22 | 15.82 | 12.60 | 24.33 |
| 10. Gujarat | 335.61 | 38.69 | 27.99 | 69.83 | 6.84 | 7.63 | 39.65 |
| 11. Orissa | 262.72 | 26.12 | 18.19 | 56.46 | 15.09 | 14.69 | 38.30 |
| 12. Kerala | 254.03 | 31.49 | 26.76 | 85.99 | 8.30 | 11.33 | 48.29 |
| 13. Assam | 199.03 | 18.82 | 16.72 | 63.72 | 6.23 | 9.68 | 42.13 |
| 14. Punjab | 166.69 | 20.51 | 17.57 | 93.24 | 24.71 | 29.42 | 44.68 |
| 15. Haryana | 128.51 | 11.73 | 9.97 | 60.65 | 18.89 | 14.26 | 32.86 |

contd..

Exhibit-13 contd..

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|
| 16. Jammu & Kashmir | 59.82 | 4.74 | 4.15 | 58.33 | | | 35.48 |
| 17. Himachal Pradesh | 42.38 | 4.95 | 3.85 | 78.99 | | | 41.32 |
| 18. Tripura | 30.60 | 2.09 | 1.03 | 73.85 | | | 41.69 |
| 19. Manipur | 14.34 | 2.00 | 1.29 | 76.44 | | | 44.27 |
| 20. Meghalaya | 13.28 | 1.86 | 0.97 | 68.32 | | | 49.33 |
| 21. Nagaland | 7.73 | 1.09 | 0.53 | 70.35 | | | 44.34 |
| 22. Sikkim | 3.16 | 0.38 | 0.21 | 68.90 | | | 38.59 |
| 23. All U.T.s | 97.83 | | | | | | |
| ALL-INDIA | 6838.12 | 686.02 | 538.77 | 64.13 | 14.60 | 14.73 | 38.27 |

Ranked by Column (2) for States.

SOURCE: Based on Tables 152, 169, 167, of Fourth All-India Educational Survey, NCERT, 1982.

EXHIBIT 14

Students flow in classes (I-VIII) during 1968-1977

| Year | NUMBER OF STUDENTS IN CLASSES | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | I | II | III | IV | V | VI | VII | VIII |
| 1968-69 | 198.35 (100.0) | | | | | | | |
| 1969-70 | 199.42 (100.) | 120.04 (60.5) | | | | | | |
| 1970-71 | 204.39 | 129.26 | 98.17 (49.5) | | | | | |
| 1971-72 | 211.19 | 127.75 | 101.51 (50.9) | 81.68 (41.2) | | | | |
| 1972-73 | 221.85 | 140.37 | 106.46 | 85.84 (43.0) | 69.49 (35.0) | | | |
| 1973-74 | NA | NA | NA | NA | NA | NA | | |
| 1974-75 | 219.75 | 146.36 | 115.73 | 91.55 | 75.16 | 61.75 (31.0) | 49.77 (25.1) | |
| 1975-76 | 219.87 | 145.13 | 119.01 | 93.39 | 78.49 | 52.58 | 53.19 (26.7) | 44.39 (22.4) |
| 1976-77 | 227.25 | 156.37 | 124.67 | 100.44 | 81.88 | 66.38 | 54.94 | 45.55 ( ) |

Figures in parenthesis indicate the percentages to the enrolment in Grade I of the corresponding original batch.

SOURCE: A Handbook of Ed. & Allied Statistics, Ministry of Education & Culture, Govt. of India, 1980, pp. 204-207, as quoted in "Elementary Education for All", Dr. M.K. Sharma, EPA Bulletin, Jan. & April 1982, Vol. 4, No.4.

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