Distance education at secondary level in India: the National Open School

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K. Sujatha

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List of acronyms

AI	Accredited Institutions
AIU	Association of Indian Universities
AVI	Accredited Vocational Institutions
CBSE	Central Board of Secondary Education
CISC	Council for the Indian School Certificate
CMA	Computer-Marked Assessment
COBSE	Council of Boards of Secondary Education
DPEP	District Primary Education Programme
NOS	National Open School
NOSP	National Open School Project
PCP	Personal Contact Programmes
SC	Scheduled Castes
ST	Scheduled Tribes
TMA	Tutor-Marked Assessment

Summary

This book is an in-depth study of the National Open School (NOS) in India. NOS is India's most comprehensive distance education programme at the secondary level, and enrols students from all over the country.

Prior to examining the NOS programme itself, the author presents the general characteristics of the Indian education system as a whole, including its historical background. It is only since independence that India has been able to move away from an elitist education system towards a more equitable one. However despite considerable progress, many children remain out of school, particularly at the secondary level, and there are still problems of quality and relevance to the world of work, as well as of how to reach out to disadvantaged groups.

The genesis and development of the distance education system in India, currently the largest of its kind in the world in terms of both institutions and enrolments, is looked at against the background of this transition. Distance education was first introduced in India in the 1960s at the tertiary level, when various universities developed correspondence courses with the aim of reducing the capital costs involved in expanding education.

Correspondence courses at secondary level were created in several states some years later, and initially focused on providing coaching for private candidates with poor academic standards.

It was in 1979 that the NOS project was launched, in order to provide secondary correspondence courses at the national level. It quickly evolved to be a much more ambitious project than the state courses, due to the recognition of a growing demand for educational alternatives in a context of insufficient infrastructure at the secondary level. The objectives of NOS were to provide

a parallel system of non-formal schooling, aimed at working adults, disadvantaged groups, and other out-of-school learners

The author thoroughly examines the different aspects of NOS: the courses offered, admission procedures, delivery, enrolment levels, and financing. She looks at NOS' strong points and shortcomings in each of these areas, including:

- *Financing*: whereas it is commendable that NOS has managed to become an almost entirely self-financed body, at the same time one may legitimately ask whether the most disadvantaged groups should be obliged to pay fees;
- *Enrolment*: enrolment levels are high, and yet considerable inter-state disparities can be observed, with three-quarters of students drawn from Delhi, Haryana, Andhra Pradesh and West Bengal states;
- *Flexibility*: in terms of admissions, taking courses and sitting for examinations, this is one of the programme's main advantages as compared to the formal system; however, not all students know how to make the most of this, and consequently fail in their examinations from wanting to take too many subjects at once.

The book concludes with an examination of issues and perspectives for the future, challenges to be met and pitfalls to be avoided. Amongst the most important requirements for moving forward is the need for greater monitoring at school level as well as an evaluation of the system itself, which has yet to be undertaken.

Chapter I
Introduction

Education in India has a very long and rich history. It can be traced back to ancient India and yet is perfectly fit to meet the challenges of the twenty-first century. In between there have been numerous foreign invasions, with the intermittent rule of Muslim powers, and the long colonial rule of the British up until India's independence. Like its history and culture, India's education system too has followed a zigzag path, moulded and designed according to the interests and exigencies of different eras. In brief, the history of education in India can be divided broadly into four periods, namely: the ancient period, the medieval period, the colonial period and the post-independence period.

India's ancient education system can be described as having an esoteric, mystical, traditional, exclusive and ascriptive character. Religion, caste and family were the determinants of education in ancient India. It was exclusive both in terms of its nature and function as well as for the students and teachers: caste was the criterion for teaching as well as for learning. Similarly, the medieval education system, although slightly more open and inclusive, could not shed its elitist character. It was again limited to a certain section of society, based on caste, profession, links with power and position in society.

Colonial education was more open-ended and in principle non-discriminative. It was secular, exoteric and modern. Unlike the earlier systems of education, colonial education emphasized the creation of a service class and included many hitherto unknown subjects in the curriculum. However, despite this broader perspective, colonial education remained far from the reach of the masses and did not percolate down to the larger segment.

The introduction of a systematic and policy-oriented educational programme started only after independence in India. It was realized that education is the key to attaining developmental goals and ought to be the fundamental criterion for national progress. As a result, emphasis was placed on the enlargement of the educational base and structure, through the establishment of schools and the improvement and restructuring of educational polices and curriculum.

Yet, despite massive investment, a sympathetic understanding of the problem, a constitutional guarantee for education, and importance placed on equality of opportunity, education could not reach the poor and the disadvantaged. Social disparity, regional imbalances and economic backwardness continued to hamper the growth and progress of education. Lack of access, poverty and unemployment proved to be major obstacles in achieving educational goals. This was more prominent at the advanced level of education, and the disparity was particularly obvious at the highest level. There was a positive and inverse relationship between the number of students and the number of grades. In other words, the higher the grade, the lower the number of students and also the fewer students from the disadvantaged sections. Wastage and stagnation increased with the increase in grade.

The incessant growth of this problem led to serious rethinking, and emphasis was placed on the universalization of education, on the one hand, and the establishment of an alternative and open learning system on the other. 'Alternative education system' refers to non-formal education facilities, whereas 'open education system' means a provision that enables the over-aged, rejected, reluctant, or interested yet bereft of facilities, to enrol and learn. This open education system has much more relevance at the secondary and higher education level than at primary level. The number of primary schools, their coverage and enrolment are to a certain extent satisfactory but this is not the case for secondary education. In fact, a huge gap exists between the primary and secondary levels. Moreover, it must be noted that India has

a very poor secondary education infrastructure. Looking at the rapid growth of primary education, it can be safely assumed that if the necessary precautions are not taken, we will fail in graduating primary-school students to higher levels and the gap could widen further due to the shortage of secondary education facilities.

Since educational opportunity cannot be denied just because of a poor secondary school infrastructure, planners have been forced to look for alternatives. As a result, the National Policy on Education (1986) and the Programme of Action have emphasized the open learning system, and also suggested the establishment of Open Schools in each district besides having a National Open School with a wide network.

The present monograph is an attempt to examine different aspects of the National Open School. These include structure, quality and effectiveness of distance education as provided by the National Open School (NOS).

The monograph consists of eleven sections. Following the introduction, the second section briefly describes education in India in general and major issues and challenges at the secondary level. The third explains the origin and development of distance education at the secondary stage and National Open School in particular. The objectives, organizational structure and courses of National Open School are presented in the fourth section. The fifth section examines the enrolment pattern in NOS. The sixth presents the characteristics of NOS, which include delivery mechanism, curriculum and instructional materials. Section seven discusses the qualitative aspects of NOS. Section eight looks at evaluation and examination aspects. Funding, expenditure, student per-capita cost, etc. are analyzed in section nine. Students' perceptions and opinions of NOS are discussed in section ten. A final section presents the conclusions.

Chapter II
The education system in India

India is the seventh largest country in the world, covering an area of 3,287,782 sq. km. India is a pluralistic society with great diversity in culture, religion and languages. It is the second most populous country in the world, next to China. According to recent estimates by the Government of India (2000b), the population has crossed the one billion mark. India is a Union of twenty-five states and seven Union Territories (UTs), and has adopted a parliamentary form of government with a federal structure. The Constitution of India provides for a division of powers between centre and states, drawing three lists: the union list, the state list and the concurrent list (Government of India, 1967). While central government is directly concerned with subjects such as defence, foreign affairs, railways etc., the state governments are concerned with the subjects specified in the state list such as law and order, police, health etc. The central and state governments are jointly concerned by the subjects specified in the concurrent list, education being one of these. Although the major responsibility for school education lies with the state government, the state and central governments are equal partners in framing educational policies and their implementation. However, the central government has supremacy over the states in enacting the education laws. The central government can implement policy decisions directly through a network of organizations, such as the Central Advisory Board of Education, the University Grants Commission, etc. State governments also implement educational policies through similar organizations, such as State Boards of Education, State Councils for Educational Research and Training etc.

Educational structure and organization

The background of the present system of education and the development of its various characteristic features is the result of its historical and colonial past. At the time of independence, India inherited an education system that was developed to serve the interests of colonial rulers. The Indian education system is characterized by a network of institutions and a student population that are both very large. The major achievement of the education system since independence has been the incredible quantitative expansion that has taken place whilst maintaining a perspective of equity and social justice. The Constitution (Article 45) of Independent India envisages free and compulsory education for all children up to the age of 14 years. Further, the Constitution assures equality of opportunity to all, and special efforts for the weaker sections of society such as the Scheduled Castes and Scheduled Tribes. In this regard Article 46 of the Constitution of India stipulates that "the State shall promote with special care the educational and economic interests of the weaker sections of the society and in particular of Scheduled Castes and Scheduled Tribes and shall protect them from social injustice and all forms of exploitation".[1]

Independent India has achieved significant progress in its literacy rate. According to the latest Census (2001), the literacy rate has gone up to 65.38 per cent.

In pursuance of the National Policy on Education of 1968 and 1986, India has been able to adopt a common structure of education throughout the country. This structure provides for ten years of primary and secondary schooling (of which the first eight years are compulsory), plus two years of senior secondary schooling and three years for a college degree. This structure is popularly known as the 10+2+3 years of the education system. Concerning

1. The Scheduled Castes and Scheduled Tribes are those castes and tribes which are scheduled in the Constitution of India to be provided additional protection in view of their socio-economic and educational disadvantages.

the first ten years, efforts are being made to move towards uniformity in the following three stages (*Table 1*).

Table 1. Education structure

Age	Stage	Class (Standard)
6-11	Primary	I-V
11-14	Upper primary	VI-VIII
14-16	Secondary	IX-X

The +2 stage refers to classes XI-XII, which constitute the higher/ senior secondary stage in all the states and Union Territories, even though in some of the states the +2 stage is part of college education, called Junior or Intermediate. However, for the first 10 years of schooling, the organizational pattern differs considerably between the different states and Union Territories. While in 19 states/UTs, primary education consists of classes I-V, in the remaining states/UTs, it consists of classes I-IV only. Similarly, the upper-primary stage varies among different states, and can consist of classes VI-VII, VI-VIII or VII-VIII. The secondary stage in 19 states/UTs consists of classes IX-X and in the remaining classes VIII-X.

Decisions concerning structure are largely left to the states. Within the broad frame of national policy, each state independently determines its educational structure. However, there is complete uniformity within the state. Recently a broad consensus has emerged for adoption of a uniform pattern by all states (*Education For All*, 2000). Non-formal education has been implemented since 1975 at the primary and upper-primary levels.

The structural layout of the education system in India is given in *Appendix 1*. The formal education system is shown per class level.

Adoption of the 10+2+3 pattern of education has had significant implications for secondary education. Under this pattern, the first 10 years of

schooling are considered as the general education stage with undifferentiated courses. Science and mathematics have been made integral parts of general education. The objective of the curriculum at the primary stage is the development of skills such as literacy, numeracy, acquaintance with the environment (social and physical), productiveness, creative expression and healthy living. At the secondary stage the undifferentiated courses aim to equip children to be responsible citizens and to provide them with basic knowledge of day-to-day life. The objectives of the first part of secondary education (standards IX-X) are twofold: (1) preparation for entry into the world of work, and (2) preparation for higher levels of academic studies or for vocational courses. For a large majority of the students this is the terminal stage of formal education. The higher or senior secondary stage then provides diversification of courses.

Elementary education is free and compulsory in all states and UTs. In some of the states education is free up to secondary stage and many states provide free education for girls, Scheduled Castes and Scheduled Tribes up until university level. Besides free education in many states, free textbooks are provided for all children up to primary stage. Scheduled Castes and Scheduled Tribes children are given various incentives, such as free textbooks, uniforms, scholarships, etc. at all levels of school education. Recently, some states have introduced special scholarships for girls. A centrally sponsored midday meals programme has been implemented in all states and UTs.

The school and fiscal year

There is no uniformity in terms of the school year in different states and UTs. In some states the school year starts in January and ends in December, in others it starts in April and ends in March of the following year and in still others it begins in June and ends in April or May of the following year. However, the fiscal year is the same throughout the country. It begins on 1 April and ends on 31 March of the following year.

Number of school days

At the national level, it has been recommended that there should be a minimum of 200 instructional days per year. The number of school hours per day should be five (minimum four hours of instruction) at the primary stage and six at the upper-primary and secondary stage, of which five hours should be for instructional work (Dev, 1995).

Educational development

Independent India has witnessed unprecedented expansion of recognized educational institutions at all levels. There are 0.94 million educational institutions of all levels and types and 186.7 million students enrolled at different levels of education (1998-1999). At school level, there are 0.62 million primary schools, enrolling 110.9 million students. There are 0.19 million upper-primary schools and 0.11 million secondary schools (including senior secondary) with a student enrolment of 40.3 million and 27.76 million respectively (*Selected educational statistics*, 1998-1999). In the last five decades there has been an incredible increase in the number of schools as well as in the student population (*Table 2*).

Table 2. Growth of recognized educational institutions since 1951 (in thousands (000))

Years	Primary	Upper primary	Secondary and senior secondary
1950-51	210	14	7
1960-61	330	50	17
1970-71	408	91	37
1980-81	495	119	52
1990-91	561	151	80
1998-99	627	190	112

Source: Selected educational statistics, 1998-1999.

While the number of primary schools almost tripled during the period 1951 to 1998-1999, the upper-primary (middle) and secondary schools increased by 13 times and 15 times respectively. Whereas in 1951 there was one upper-primary school for every 15 primary schools, by 1998-1999 the ratio of upper-primary schools to primary schools had increased and for every three primary schools there was one upper-primary school. Similarly, the proportion of secondary schools to primary schools also showed impressive improvement: whereas in the year 1950-1951 there was one secondary school for every 25 primary schools, in 1998-1999 there was one secondary school for every seven primary schools. Along with the increase in number of schools, access to education also improved considerably (*Table 3*).

Table 3. Habitations* with and without schools, per level

Primary			Upper primary			Secondary		
Distance (in kms)	Percentage of habitations		Distance (in kms)	Percentage of habitations		Distance (in kms)	Percentage of habitations	
School within habitation	77.81		School within habitation	37.02		School within habitation	18.29	
Up to 0.5	7.68		Up to 1.0	19.89		Up to 2.0	27.16	
0.6 to 1.0	8.27		1.1 to 2.0	16.37		2.1 to 4.0	23.22	
Up to 1.0		93.76	2.1 to 3.0	11.72		4.1 to 5.0	9.23	
1.1 to 2.0	4.24		Up to 3.0		85.00	Up to 5.0		77.91
Up to 2.0		98.00	3.1 to 4.0	5.52		5.1 to 6.0	5.24	
More than 2.0	2.00		4.1 to 5.0	4.18		6.1 to 8.0	6.91	
			More than 5.0	5.30		Up to 8.0		90.06
						More than 8.0	9.94	
Total	100		Total	100		Total	100	

* A habitation is a distinct cluster of houses existing in a compact and contiguous manner, with a local name, and a population that should not be less than 25 in plain areas and not less than 10 in hilly or sparsely populated areas.

Source: Sixth All India Educational Survey (1995), NCERT, New Delhi.

According to the Sixth All India Educational Survey (1995), at primary level 77.8 per cent of the population are served by primary schools within the habitation and nearly 94 per cent of the population have schooling facilities within one kilometre's distance. Similarly, 85 per cent of the population have access to upper-primary schools within a radius of 3 kilometres. At the secondary level, about 78 per cent of the population have schools within a radius of 5 kilometres. Despite this impressive picture at the all-India level, there are sharp disparities among different states and regions in terms of access to education. Different social groups such as Scheduled Castes and Scheduled Tribes, large numbers of small and scattered habitations, as well as remote and interior localities, still lack access to education. Fairly recently, several special measures and a relaxation of norms have been adopted to improve access in these areas.

Management

In India educational institutions are established and managed by different agencies (see *Table 4*). Depending on the management type, the schools can be categorized as: (a) government schools; (b) local-body schools; (c) private aided schools, which are established and managed by private societies but funded by government (grant-in-aid schools); and (d) private unaided schools, which are established and run by educational entrepreneurs and recognized by the government. The latter do not seek funds from the government, as they are self-funded through charging fees to students. All the types of schools follow the same curriculum and examination system, as prescribed by the respective state Boards of Education and national-level Boards of Education.

Table 4. Number of schools per management type and level

Level of education	Management			
	Government	Local body	Private aided	Private unaided
Primary	254,606 (44.63)	270,806 (47.47)	21,557 (3.80)	23,486 (4.20)
Upper primary	74,796 (45.94)	54,556 (33.51)	15,520 (9.53)	17,933 (11.01)
Secondary	24,559 (37.46)	7,401 (11.29)	23,060 (35.17)	10,544 (16.10)
Senior secondary	9,136 (38.61)	889 (3.76)	10,646 (44.99)	2,991 (12.64)

Source: Sixth All India Educational Survey (1995), NCERT, New Delhi.

An analysis of the data of the All India Educational Survey (1995) shows that at the primary and upper-primary levels, government schools and those run by local bodies together constitute 92.1 per cent and 79.45 per cent respectively. The role of local bodies in primary and upper-primary education has been growing ever since the 73rd Amendment to the Constitution. This amendment provided for the decentralization of education and the empowerment of local bodies for the dissemination of knowledge and learning. The role of private schools, both government-aided and unaided, is limited at these stages, largely because of the low profits to be accrued. They have a marginally bigger role to play at the upper-primary level (20.54 per cent) than at primary (8 per cent).

The distribution of the different management types at the higher stages of schooling shows a change in the pattern. At the secondary level, government and private aided schools are more or less equal in proportion with 37.46 per cent and 35.17 per cent respectively. Private unaided schools make up a relatively small percentage (16.10 per cent), whereas local bodies have the

smallest role to play with a mere 11.29 per cent. Obviously, the 73rd Amendment has provided little impetus to their growth at this level, or even at the senior secondary level, where they form a meagre 3.76 per cent of the total. Private aided schools constitute the maximum at the senior secondary level with 44.99 per cent of the total number of schools at this stage. Another 38.61 per cent of the senior secondary schools are government schools, and only 12.64 per cent are private unaided schools. Self-funding private unaided schools are at a maximum at the secondary level, indicating which stage proves to be the most profitable for private entrepreneurs or 'public schools'.

One notable detail in the distribution of the government/local body *v.* private management schools is that the schools in rural areas are mostly of the former variety. Private schools, whether aided or unaided, are to be found mainly in small towns, cities, or other urban pockets.

Recognition and grant-in-aid for private schools

The private schools, whether or not they are funded by the government, need to be recognized by the Department of Education of their respective states, by the Central Board of Secondary Education, or by the Indian Council of Secondary Education. Every private school has to apply for recognition to the appropriate educational authority. Private schools are recognized based on the fulfilment of certain conditions, which include the following:

- to be run by a society registered under the Societies Registration Act, 1860, or by a public trust constituted in accordance with the rules;
- to follow the approved courses of instruction;
- to have adequate infrastructure and building facilities;
- to be open for inspection and supervision by the appropriate authorities etc.

The conditions for recognition are largely similar across different states. However, there may be some additional conditions and clauses in different state Education Acts.

Private schools seeking grant-in-aid need to fulfil the following conditions:

- the school should have a permanent income, whether from endowments or other sources excluding fees and pupils' fund;
- it should have a reserve fund of an amount prescribed in the rules and regulations;
- it must employ an adequate number of qualified teaching and other staff as approved by the government;
- the number of students enrolled in an aided school should not fall below the number on the basis of which aid was initially granted; and
- working days of aided schools should not fall below the amount prescribed by the education department.

The grant-in-aid is divided into two categories, namely maintenance and building grants. The maintenance grant is of two kinds, recurring and non-recurring. The recurring maintenance grant includes staff salaries, a provident fund grant, a pension and retirement benefit grant, a medical grant, a grant for books, journals and library essentials, and grants for the acquisition of school equipment. The recurring grant is given to Aided Schools at the rate of 95 per cent.

Among the non-recurring grants, a building and contingency grant of up to 95 per cent may be given, whereas for equipment and furniture two-thirds of the expenditure is granted by the government.

Besides state government-run schools, the central government runs a chain of schools called Kendriya Vidyalayas (central) Schools for the children of central government employees, and has also established Navodya Vidyalayas (pace-setting residential schools) for talented rural children. In addition, in many states the

Departments of Social Welfare and Tribal Welfare run schools exclusively for Scheduled Castes and Tribes. The number of schools under different types of management varies for different levels of education.

Facilities

According to the Sixth All India Educational Survey (1995), at the primary stage only 65 per cent of schools have buildings, and 3 per cent of schools function in the open. At upper primary and secondary levels, around 69 per cent of schools have buildings. The majority of primary schools do not have basic amenities, such as drinking water and urinals. At secondary stage, 83 per cent of schools have buildings and 76 per cent have drinking-water facilities, although only 31 per cent have urinals. Since 1994, under the DPEP, as part of a quality improvement initiative, construction of school buildings has been accorded greater importance and the situation has now changed somewhat.

Enrolment

In the past few decades there has been an impressive increase in student enrolments at different levels of education. The total enrolment at primary for 1998-1999 was 110.9 million. Enrolment increased 5.77 times between 1950-1951 and 1998-1999 (*Table 5(a)*).

Table 5(a). Enrolment per level since 1951 (in millions)

Years	Primary	Upper primary	Secondary and Senior secondary
1950-1951	19.2	3.1	1.5
1960-1961	35.0	6.7	3.4
1970-1971	57.0	13.3	7.6
1980-1981	73.8	20.7	11.0
1990-1991	97.4	34.0	19.1
1998-1999	110.9	40.3	27.8

Source: Selected educational statistics 1998-1999.

At the upper-primary stage of education, the enrolment during this period (1950-1951 to 1998-1999) increased more than 13 times, while at the secondary and senior secondary stage the increase was 18 times. At all levels, the increase in girls' enrolments was much higher than the boys'. However, girls still constitute less than 50 per cent of total enrolment.

The increase in enrolment at different stages of school education is not proportionate. Of the total enrolled in school education, 63 per cent of students are at the primary stage. Upper primary-level enrolment constitutes 22 per cent, whereas only 15 per cent are at the secondary stage. This indicates the high drop-out rate and low transition rate from primary to upper-primary and secondary levels. In other words, although enrolment has increased considerably, most of the students drop out before completing the upper-primary stage and very few continue up to the secondary level.

Although the increase in enrolment is impressive, the population growth during the past few decades has also been high. A comparison of enrolled children with the total school-age population shows that millions of children are still outside the school system.

Gross enrolment and net enrolment ratio

The gross enrolment ratio at the primary and upper-primary stages increased during the last two decades from 83 per cent to 92 per cent and from 40 per cent to 57 per cent respectively (*Table 5(b)*).

Table 5(b). Gross enrolment ratio

Year		Girls	Total	SC		ST	
				Girls	Total	Girls	Total
Primary-level enrolment							
1980-1981	Primary	66.2	83.1	57.8	82.2	45.9	70.0
1998-1999		82.85	92.14	77.95	87.57	73.22	85.09
1980-1981	Upper	27.2	40.0	16.2	29.1	10.8	19.5
1998-1999	primary	49.08	57.58	50.96	62.09	40.48	52.20
Secondary-level enrolment							
1980-1981	Secondary	2,189,361 (30.65)	7,142,598 (100.0)	209,364 (24.27)	862,774 (100.0)	73479 (27.58)	266,448 (100.0)
1998-1999		7,054,19 (38.23)	18,451,855 (100.0)	902,010 (35.79)	2,520,235 (100.0)	359,564 (35.54)	1,011,748 (100.0)

* SC: Scheduled Caste; ST: Scheduled Tribe.
Figures in parentheses indicate percentage of total enrolment.
Source: Selected educational statistics 1980-1981 and 1998-1999.

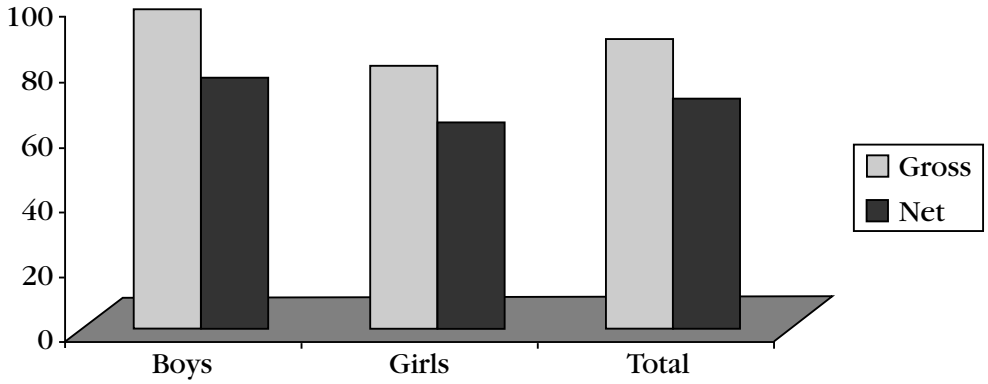
The gross enrolment ratio of girls has increased remarkably both at primary and upper-primary stages. This increase is particularly striking at the upper-primary level, and even more specifically among girls from the Scheduled Castes and Scheduled Tribes. Similarly, at the secondary level, the proportion of girls has increased with the increase in enrolment. The enrolment ratio varies from state to state.

Table 6. 1997-1998 enrolment ratios at primary level (6-11 years)

Enrolment ratio	Boys	Girls	Total
Gross	98.5	81.5	90.3
Net	77.7	64.0	71.1

Source: Education For All Year 2000 Assessment. 2000. Ministry of Human Resource Development and NIEPA.

Figure 1. Gross and net enrolment ratio



As against the gross enrolment ratio of 90.3 per cent (98.5 per cent for boys and 81 per cent for girls), the net enrolment comes only to 71.1 per cent, which indicates that a large number of children remain outside of school (see *Table 6, Figure 1*). Although female enrolment has shown a significant rise during the last few years, gender disparity does not seem to have been reduced. The net enrolment ratio shows that there are as many girls outside the school system as there are within it.

The National Sample Survey Organization's household survey of 1995-1996 shows that the net attendance of 6-10 year-old children is 66 per cent in classes I-V, and that of 11-13 year-old children is 43 per cent in classes VI-VII. A total of 26 per cent of 14-17 year-old children are in classes IX-X, and only 15 per cent of 18-24 year-old youth are in senior secondary classes. This clearly indicates the magnitude of the out-of-school population of different age groups.

Despite phenomenal expansion of educational facilities and increased enrolment, the pace of educational progress is slow, due to a high drop-out rate and wastage. The drop-out rate among girls, Scheduled Castes and Scheduled Tribes is alarming. Again it varies among different states and regions and at the micro level.

According to the latest data, out of 100 children joining class I only 45 reach class VIII (*Selected educational statistics,* 1998-1999). From among those completing the upper-primary stage, less than 30 per cent join the secondary schools. Thus, out of a total of 100 children joining class I, less than six pass the secondary examination, and that too with varied levels of performance.

Teacher/pupil ratio

One of the indicators of quality of education is the proportion of teachers to students. The teacher/pupil ratio at the primary stage is 1:42; this is a slight improvement on 1995-1996, when it was 1:47. Recent interventions, such as providing second teachers under the Operation Blackboard scheme and DPEP, have helped to reduce the proportion of students per teacher. The teacher/pupil ratio has not changed much at the upper-primary and secondary levels in the last few years, remaining at 1:37 and 1:31 respectively (*Selected educational statistics*, 1998-1999).

Trained teachers

The extent of trained teachers varies among different states and different levels of school education. The states in the north-eastern region of the country have a large proportion of untrained teachers at all levels of school education. Seven states and UTs have 100 per cent of trained teachers at all levels of school education. At secondary level, in seven states and UTs, trained teachers constitute less than 50 per cent of total teachers. However, in 20 states and Union Territories, at the secondary level more than 90 per cent of teachers are trained (*Selected educational statistics*, 1998-1999).

Government finances

Despite Policy Statements (1986 and 1992), supported by the subsequent Eighth Five Year Plan, the promise to raise the education allocation to at

least 6 per cent of GNP has remained unfulfilled. The allocation for education represents 3.8 per cent of GNP (according to data from 1996-1997). In the last few years the proportion of GNP invested in primary education has increased. In view of the priority accorded to universalization of primary education, 50 per cent of the total expenditure on education (state and central) has been allocated to primary education, whereas the secondary education sector has the second largest allocation, with 29.99 per cent. (Analysis of budget expenditure, 1995-1996-1998). However, there is great variation among different states in the extent of expenditure on education.

The goal of universalization of primary education has been elusive despite significant expansion of access to education. While universalization of primary education has been the major concern, in the past decade several policy measures and initiatives for quality improvement have been implemented. It has been realized that the mere provision of school facilities does not guarantee participation. Similarly, attending school may not necessarily lead to the expected levels of learning. Therefore, in the past decade the focus has been shifted to improving quality of education along with quantitative expansion.

Thus the Indian education system is characterized by its large size both in terms of number of institutions and size of student population. There has been significant expansion of the system at all levels. However, inequalities in educational opportunities still continue, due to disparities at spatial and group levels. While on the one hand India has some schools, colleges, universities and technical education institutions that can be compared to top-quality institutions at international level, on the other hand a large number of schools in rural areas do not have even basic minimum facilities and their students do not reach minimum levels of learning. The high drop-out rate coupled with poor quality of education contributes to slow progress of education.

In the past decade, several policy measures and innovative initiatives have been implemented in order to improve the access and enhance the

quality of school education. One such major initiative was through the District Primary Education Programme (DPEP), implemented in a large number of districts. Decentralization of educational planning, capacity building at local level, and community participation are some examples.

Issues and problems at secondary level

As never before, secondary education in India is at a critical juncture due to increased demand, on the one hand, and, on the other, a large number of school-age children still outside the system. The major issues and problems at the secondary stage are largely related to access, quality, relevance and management of the system.

Access

Less than 30 per cent of children from the relevant age group are in secondary schools. Since a large number of children are out of school, it is difficult to ascertain whether the existing number of institutions and facilities at secondary level are capable of accommodating any major change in the demand pattern of education. Considering the efforts made for universalization of elementary education, a marginal improvement in performance in elementary education would change the pattern of demand for secondary education. Further, decisive quality improvement programmes such as the District Primary Education Programme (DPEP) across the country, the proposed new programmes such as Sarva Siksha Abhayan (Movement for Education for All), and the extension of DPEP to the upper-primary stage, would all lead to a better performance of elementary education. All this will influence enrolment and drop-out rates. A fall in the drop-out rate by 10-15 per cent at the elementary stage would, in turn, create an enormous increase in the number demanding education at the secondary level. Secondly, a large segment among the new seekers would be from remote areas, disadvantaged groups and girls who have new aspirations and expectations from education.

India is committed to Basic Education for All and is diverting a major share of resources to elementary education, leaving little for the other sub-sectors, including secondary education. The increase in public demand may not lead to private initiative in providing secondary education in rural and remote areas that particularly covers disadvantaged groups, since privatization at the secondary stage is selective in its spread and choice of students. In view of the cost, private schools are more conscious of the background of students, and seek those who can both afford schooling and are able to achieve better results. In this context the main issue would be how to cope with the increase in demand and to provide educational opportunity to a large population. In view of equality of opportunity, access is the primary condition. However, most of the areas that do not have secondary schools are in remote interior regions and are inhabited by disadvantaged groups. The routine norms would not facilitate provision of secondary schools in these areas. In fact these remote and sparsely populated areas were deprived of even primary schools until recently. Considering financial and other factors, access to secondary schooling would be a great problem.

Quality issues

Quality is one of the most important issues in secondary education. Quality includes aspects related to provision of facilities, curriculum, teaching and learning, the examination system, school management and monitoring. As far as physical facilities are concerned, in several schools these are barely adequate. This is all the more so in the case of government schools located in rural areas, and among the schools run by local bodies. Many schools do not have equipment and consumables to conduct laboratory experiments. Teaching aids and library facilities are often inadequate or sometimes absent. Lack of these essential facilities hinders delivery of the proper level of education, appropriate to secondary and senior secondary stages. The central government has a special funding scheme for improving science education at secondary stage.

Curriculum

After adoption of the 10+2+3 pattern of education, undifferentiated general education was introduced at secondary level. The Boards of Education in their respective states prepare the curriculum based on the broad national curriculum framework. The Boards of Education vary in their capacities, this resulting in large differences in content and curriculum among different states. In fact the National Policy on Education of 1986, and the Programme of Action of 1992 categorically suggested improving the quality of secondary education and restructuring the state Boards of Education.

Effectiveness of the teaching-learning process is one of the fundamental aspects of quality of education. At the secondary stage, in some of the states, the number of untrained teachers is quite high. The teachers who are responsible for the entire teaching and learning system were themselves educated in a system that is almost five decades older than the system in which the teacher is now functioning (Rajput, 1995). The pre-service teacher training suffers from many shortcomings. There is a lack of adequate subject knowledge competency among teachers, which in view of grading of the curriculum, is a serious handicap in the effective implementation of the curriculum. Despite significant improvement in the curriculum, the teaching methods remain conventional, resulting in an ineffective teaching-learning process. As never before, the in-service training of teachers on a regular basis has become necessary and urgent due to the recent changes in the curriculum and the emphasis on interactive methods of teaching. In view of the number of teachers and the variation in their levels of education and training, it would be a very difficult task to provide regular in-service training. The concept of in-service teacher education is to undergo a radical change, with school-based teacher development initiatives rather than one-off training courses. Innovative alternative approaches, such as distance education through a multimedia approach, as well as strong internal supervision, are required.

Examinations

An important problem facing secondary education consists of the low achievement levels and poor results in public examinations at the end of secondary and senior secondary stages. More than 50 per cent of students who sit for secondary/senior secondary examinations of different state Boards of School Education fail to qualify for a pass certificate each year. There are several states where the pass percentage is as low as 25-30 per cent. Qualitatively, not more than 6 to 8 per cent of students get first division passes (Singhal, 1995). Further, the examination results are at the bottom level among rural and government schools as well as schools run by local bodies. Inter-school variations are very significant in examination results. Secondary schools with zero per cent results are not uncommon across the country. However, the private schools and some of the aided schools have a better performance and higher examination results. Although basic minimum infrastructure and qualified teachers are necessary conditions, these conditions alone cannot improve the standards of education unless the resources are managed well. For this, developing institutional leadership and capacity building among the heads of schools is necessary. However, considering the number of school heads and the diverse situations of schools, the main challenge would be devising a mechanism for building the capacities of heads of schools.

Monitoring

Secondary schools in India are subjected to too rigid a control. This results in too much bureaucratization, dependency, and lack of motivation and innovation on the part of the teachers and school heads. In order to improve the institutional performance and thereby to achieve school effectiveness, the Government of India's National Policy on Education of 1986, as revised in 1992, lays stress on granting autonomy to institutions.

However, in the case of secondary schools this has remained at the policy level without much move towards school autonomy.

The delivery mechanism in secondary education is not only traditional, but also does not take into account the diverse situation of the schools. There is a need for radical change in the management and delivery system, away from the present system of remote control and centralized management, to keep up with the fast expanding secondary education sector as well as to counter the inadequacy of resources. Instead of a maintenance-oriented system, the need is for a performance-oriented system.

The present monitoring and supervision system has become obsolete and ineffective. More than one-third of schools are not inspected, not even once a year (Singhal, 1995). Neither the school heads nor the inspecting officers are aware of which schools are given more attention and what are the aspects that need more support. It would be a question of equipping the inspecting officers with concepts of modern management and replacing the age-old colonial inspection system, which is ritualistic and fault-finding and has no impact on improving the functioning of the school. In a move towards decentralization of schools, monitoring and community involvement have been incorporated in recent policy reforms.

Relevance

The most disquieting feature of secondary education is that, even after ten to twelve years of schooling, substantial numbers of students do not acquire the capacity to understand their physical, cultural or socio-economic environment. The interface between education and the job market is characterized by a lack of complementarity. Jobs requiring general education are not increasing at the same rate as the availability of manpower. Vocationalization at the higher secondary stage was a major emphasis of the

educational policy of 1986. A total of 50 per cent of students at senior secondary level were to go into a vocational stream. The actual figure is too insignificant. Lacking proper planning and the necessary inputs, vocational education has suffered a setback as far as both enlarging its base and establishing its credibility are concerned.

Serving differential educational needs is a major concern at the secondary stage. The rigid formal system has little scope to incorporate the students' needs or interests. Similarly, for a large number of students, secondary education is the terminal point to enter the world of work. However, the general education provided in schools has little or no relevance to either life or work.

Chapter III
Distance education in India: genesis and growth

India has the distinction of having introduced distance education, in the form of correspondence education, nearly four decades back at the tertiary level and 35 years ago at the secondary level.

At the higher-education level

In view of the increased demand for higher education, many universities were not in a position to provide quality education. A scheme of correspondence education was included in the Third Five Year Plan (1960-1965) and an expert committee was constituted in 1961 to work out the details. The committee recommended the scheme of correspondence education, which started in one of the universities, as it offered more flexibility. Delhi University was the first to establish the Directorate of Correspondence Education in 1962 by admitting 1,112 students for a Bachelor's Degree in Arts. The cause of correspondence education was further augmented and reinforced by the Education Commission (1964-1966) when it recommended expansion of correspondence studies to cover higher education as widely as possible. This recommendation was largely guided by cost considerations as correspondence education was supposed to reduce the capital cost of expanding higher education and possibly bring the recurrent cost down to a manageable level. As a direct consequence, a few more universities opened correspondence education departments during the sixties. However, the system started taking firm root only in the mid-seventies with phenomenal growth in the number of universities offering distance education, as well as in the number of students (Datt, 1988). Further, a breakthrough in distance education in India at tertiary level occurred as a result of the establishment of Andhra Pradesh State Open University (1982) and the Indira Gandhi

National Open University (1986). Later a few state-level open universities also appeared. Currently, there are 49 universities offering distance education and seven state open universities covering about 20 per cent of the student population in higher education. Thus, India today has the largest distance education system in the world, both in terms of number of institutions and number of students in the system. The distance education institutions of universities adopt the same syllabi and examination system as the conventional system. But the evolution of Indira Gandhi National Open University and state open universities brought changes and different designs to distance education. They began to introduce flexibility and innovations in the curriculum and syllabus besides providing greater freedom and choice to the students.

Distance education at school level

Distance education at secondary level in India evolved in four different stages. Each stage was distinct in terms of objectives and the characteristics of distance education itself. The objectives and scope underwent significant changes leading to broad common objectives. However, although the objectives and purpose of distance education are the same, the approach and some of the characteristics vary across different states.

First stage as correspondence education

Distance education at the school level is vastly different from that at the university level. Although, as in the university system, distance education entered into the school system through correspondence education in 1965, the focus, the need and the approach were quite different. Unlike distance education at the higher level, it was neither demand-driven nor planned as an alternative to improve educational participation. In fact, the genesis of distance education at the school level can be traced to the problem of dismal performance of private candidates in secondary-school examinations.

Secondary education in India is characterized by low participation, low transition and high failure rates. This picture gets even murkier with the dismal performance of private candidates. The idea to start correspondence courses at the secondary level originated in 1964 when the conference of Boards of Secondary Education in India recommended that the Boards of Secondary Education should consider starting correspondence courses to improve the academic standards of private students. In other words, correspondence education was just a means to coach the private candidates to improve their academic performance.

As a result, the Board of Secondary Education of Madhya Pradesh took the initiative to begin correspondence courses to provide coaching for secondary-school students in 1965. During 1968, Delhi Patrachar Vidyalaya (correspondence school) came into existence. The Boards of Secondary Education of Rajasthan (1968), Orissa (1977) and Uttar Pradesh were the other institutions that started offering correspondence education for private candidates. The correspondence institutes in Rajasthan, Madhya Pradesh and Uttar Pradesh were established primarily to provide coaching to private candidates who were sitting for secondary and senior secondary-level examinations. In the State of Rajasthan it was made mandatory for all private students taking senior secondary examinations to register in a correspondence course (Bakliwal, 1988). In the State of Orissa, a correspondence course was started to provide coaching to non-matriculate teachers to take the matriculation examination privately. All these correspondence institutions followed the same syllabus, curriculum and examination patterns as prescribed by the respective state boards. However, all the institutions prepared the correspondence lessons based on the curriculum exclusively for the private students. Besides providing learning materials, a few personal contact programmes were also organized by all the correspondence institutions except Madhya Pradesh.

Second stage as open learning system

A breakthrough in distance education in general, and at secondary level in particular, was achieved during the year 1979 with the establishment of the Open School Project. There are many factors that have contributed to the evolution of the idea of the Open School in India. Post-independent India is marked by the paradox of a growth of education in terms of increase in enrolment ratio and number of institutions, at the same time as an increase in inequality reflected in lack of access to many. Many underprivileged communities and underdeveloped localities are still bereft of educational opportunities. This has led to the reformulation of educational strategy and priorities. Out of this understanding emerged the idea of supplementing formal education with alternative education. One such alternative considered was distance education. A working group was appointed by the National Council for Educational Research and Training (NCERT) to examine the feasibility of the Open School achieving universalization of elementary education and meeting the increased demand for secondary education. The working group recommended that an Open School be set up at the secondary level to cater to the educational needs of the 14+ age group. Although the idea of the Open School emerged in 1974, it took concrete form only in 1978. The ensuing period was of debate, discussion and analysis of the subject. The Open School concept took firm root in the recommendations of the International Conference on Correspondence Education held in New Delhi during 1978. The recommendations of the seminar paved the way for the quick establishment of Open School.

Finally, the Central Board of Secondary Education (CBSE) prepared a blueprint for the establishment of Open School as a Project, and the Ministry of Education accepted the proposal. Thus the Open School Project was established by CBSE during 1979. The concept of an Open School at the secondary level was a big and bold departure from, and a considerable advance over, the concept of correspondence education. The aim was to liberate the system from its ingrained rigidities and orthodoxy (Dewal, 1994). Unlike the

correspondence education institutions at school level under different State Boards of Education, the Open School Project aimed to provide a second chance and opportunity for those in the 14+ age group who, for a number of reasons, were unable to continue their studies in the formal system.

The objectives of the Open School Project were:

1. To offer a parallel, non-formal, alternative system to formal schooling and to give a second chance to out-of-school learners who were working adults (especially women) and learners from disadvantaged sections of society and those living in remote or inaccessible areas. In the first phase, the Open School would offer bridge or preparatory and secondary-level courses.

2. To design and offer technical, vocational and life-enrichment courses.

3. To promote open distance education through research, publication and information dissemination.

In view of its objectives and scope, the Open School Project has developed special features such as:

- an open entry system for all learners irrespective of their level of education; anyone above the age of 14 years may be admitted;
- students from all parts of the country are accepted;
- multi-level registration, i.e. Bridge course and Core course;
- both English and Hindi used as languages of instruction;
- expansion in phases, with the establishment of regional Resource-cum-Study Centres;
- periodic personal contact programmes;
- relevant curriculum and separate schemes of studies in tune with the needs of learners;
- a flexible examination scheme;
- easy-to-learn materials.

The courses offered were: bridge courses equivalent to elementary level, secondary, and life-enrichment courses. Thus, the Open School Project was very different from the correspondence courses offered by different Boards of Education. A blueprint was prepared indicating its objectives and the details of the implementation strategies. Although it was prepared by the CBSE, which is a conventional examining body, it identified the necessary conditions for distance education to maintain its own identity as a sustainable and successful alternative system devoid of the rigidities of formal education. Accordingly, the organizational structure and functions were formulated.

In view of its objectives and special features, the Open School Project was accorded functional and academic autonomy, creating a separate organizational structure within the CBSE. The Open School Project was headed by a Director and assisted by a team of academic tutors and secretarial staff. An Advisory Committee was constituted to advise in academic matters, to suggest steps to extend/consolidate activities of the Open School and any other aspects relevant to the Open School Project. The academic and technical staff for the Open School were selected through an open selection process. The Director for the Open School Project was recruited by the Chairman of CBSE.

The initial two years were devoted to setting up the various modalities and infrastructure for the Project. The implementation of the Open School Project was not only meticulously planned but it was also cautiously launched. It was decided that initially the Open School would offer a bridge course and a secondary-level course. Taking into account the special features of the Open School, a separate scheme of studies was developed in tune with the needs of the learners; under this scheme the students had the option of studying the subjects of their choice. The Open School also introduced a flexible scheme of examinations. Examinations were to be held twice a year. A learner could sit for examination in one or more subjects. Five subjects could be passed concurrently or in stages. The credits obtained would be accumulated, although to obtain final certification the five subjects would have to be passed within five years.

In view of the separate scheme of studies adopted by the Open School, a separate syllabus and curriculum were drawn up by a Subject Syllabus Committee. Although the syllabus was drawn up separately for the Open School, it was not substantially different from the general syllabus followed by the CBSE. However, the emphasis was on functional aspects rather than theoretical perspectives. The CBSE announced that the Open School secondary certificate would be equivalent to other CBSE secondary certificates offered to formal students, which means that those who pass an Open School secondary course can enter the senior secondary level in any formal school.

Adopting a subject-team approach, the instructional materials were designed as self-learning lessons. The standard methodology, which consists of systematic and sequential steps in the design of self-learning materials in distance education, was followed (Dewal, 1986) by the Open School. In addition to learning materials, study guides, sample question papers, a glossary of terms, an illustration bank etc. were also prepared. Although in the beginning a multimedia approach in the production of study materials was considered, finally these remained restricted to printed instructional materials.

After a wide publicity drive, the Open School Project started its first instructional cycle with the registration of 1,672 students in May, 1981. Thus the planning and preparatory stage of the Open School Programme lasted nearly two years. The learning materials were sent to students through five despatches.

The personal contact programmes formed an integral part of the learning package that the Open School provided, these programmes being organized for a short duration during the vacations. It was felt that they did not provide full benefit and also led to some logistic problems. In order to overcome these, a Resource-cum-Study Centre scheme was devised (Singh, 1988). The Study Centres carried out functions such as registration of students, distribution of study materials, conducting contact classes during weekends and holidays, evaluation of student assignments, collection of examination

forms etc. The establishment of Study Centres did help in improving the interaction of students with tutors, distribution of materials through the centres, and attendance at contact classes. It also helped in saving expenditure (Singh, 1988).

The examinations were conducted twice a year by the CBSE for Open School students. The first examination session was organized in April, 1983. There were initial hiccups in organizing the examinations, but in due course several issues concerning internal assessment and external examinations were sorted out through orienting the examiners on the open learning system.

Starting with an enrolment of 1,672 in 1981, enrolment multiplied to reach more than 40,000 in 1989. Given the public demand for senior secondary-level courses, Open School introduced the senior secondary level (XII standard) in 1986 and launched registration for the same in 1987-88. The Open School Project continued this system until it was amalgamated with the National Open School in 1989.

As one of its objectives, the Open School Project promoted the idea of the open learning system and played an important role in getting Open Schools established by different state governments. Tamil Nadu was the first to establish a State Open School during 1983 with a major objective being to provide educational opportunity for disadvantaged groups. It restricted its courses only to secondary-level education, adopting the same syllabus and examinations as the formal system. The Open School in Tamil Nadu functions within the frame of the Board of Secondary Education. Specially designed learning materials are provided as well as a few contact sessions.

Following National Policy on Education (1986) suggestions and also considering the successful experience of the Open School Project, the State Board of Secondary Education, Madhya Pradesh, established an Open School in 1987 by subsuming the existing institute of correspondence education and redefining its objectives and scope. The Rajasthan State Board of Secondary Education also converted its correspondence education institute into a State Open School, expanding its objective to providing access to education for

those who otherwise could not reach formal education, rather than only serving the private students. However, these schools follow the same syllabi and examination system as those of the formal system. Rajasthan Open School has introduced flexibility at secondary level by setting a three-year duration for completion of the secondary certificate course.

Origin of the National Open School (NOS)

The National Policy on Education (1986) was a watershed in the development of education in India. This policy clearly stated the need for distance education and envisaged a strong and vibrant Open School system in India to complement formal secondary education. As a consequence of the National Policy recommendations, coupled with the emerging success of the CBSE Open School Project, the National Open School (NOS) was established in 1989 as an autonomous body under the Ministry of Human Resource Development, amalgamating the Open School Project of CBSE. In 1990, the Government of India authorized the National Open School to conduct examinations and act as the certifying authority at the secondary and senior secondary levels. As a result, NOS has assumed the function of a Board of Examinations.

It was the first time in the country that a distance education institution at secondary level was given autonomy and authorized to conduct examinations for certification. This can be considered as an important and radical approach to unshackle distance education from the folds of the formal system and to infuse flexibility, relevance, quality and credibility in distance education as an alternative system. Thus, distance education, with its own identity and independence, was able to gain credibility and recognition as an equivalent system. This was really a turning point for the distance education system, providing a basis for further growth and expansion.

With the advent of the National Open School, the emphasis was on distinguishing open learning from correspondence education. There was

significant development in terms of broadening the objectives and scope of Open Schools compared to the earlier correspondence institutions, which had the limited objective of coaching the private candidates sitting for examinations. The guidelines for setting up the Open Schools, prepared by NOS, helped different state governments to develop a suitable model for their own context.

State Open Schools

Based on the suggestions of the National Policy on Education (1986) and the successful experience of NOSP and NOS, some of the states have established state-level Open Schools. There are ten Open Schools in different states, including Delhi Patrachar Vidyalaya (school of correspondence education). Two more states – Maharastra and Himachal Pradesh – have recently established State Open Schools and are in the process of planning their courses. In the case of Madhya Pradesh and Rajasthan, the State Open Schools were established by subsuming the already existing Institutes of Correspondence Education functioning under the State Boards of Secondary Education. All the State Open Schools offer secondary courses, except the Open School in Andhra Pradesh, which provides only primary and upper-primary education. The Open Schools function under their respective State Boards of Secondary Education. However, in West Bengal and Andhra Pradesh, the Open Schools are autonomous.

Relation with NOS

With the advent of the National Open School Project and the later establishment of NOS, the emphasis was on distinguishing open learning and distance education from the correspondence education that mostly served private students. The objectives of the NOSP and NOS are to promote the open learning system and provide consultancy services. They aim to engage in model-building with the close collaboration of states and other agencies or institutions, and to promote standards of learning in the distance education

system in general, as well as in the Open Schools that may be set up in different parts of the country. In view of these objectives, the NOSP and NOS play an important role in setting up State Open Schools by developing guidelines, norms and model frameworks. NOS provides professional and technical support in curriculum development, designing and producing instructional materials, as well as capacity building of the staff of State Open Schools etc. In the recent past NOS signed a Memorandum of Understanding (MOU) with different state governments/State Open Schools for establishing open schools and providing professional and technical support to introduce different courses in distance education. NOS also provides funding to State Open Schools for infrastructure development, curriculum development, material revision etc.

At present some State Open Schools like those in Haryana and Madhya Pradesh have adopted the NOS syllabus and self-learning materials in toto. The State Open School in Karnataka also follows the NOS syllabus, but the instructional materials are translated into the regional language. In the last few years most of the State Open Schools have adopted the NOS model of the Study Centre approach, with a flexible scheme of studies and innovative examination system. However, some State Open Schools, such as in Rajasthan and Tamil Nadu, continue to follow the syllabi and examination system of the formal system with some flexibility.

National Open Learning Consortium

In order to break the isolation of the different distance education institutions and to improve interaction, share resources and to benefit from each other's experiences, a National Consortium of Open Learning System, under the chairmanship of NOS, was created during 1999. NOS has been playing an important role in moulding the open learning system at school level in India, developing guidelines, and building the capacities of people involved in distance education at school level in different states. It is expected to

develop a network among the Open Schools and to create an interface with the formal system.

A comparative picture of different Open Schools, covering their main characteristics, is given in *Appendix 2*.

In the past decade, several significant changes have taken place in distance education at secondary level. The Open Schools in different states vary in terms of curriculum and syllabi, examination system, level of education offered, and duration and frequency of personal-contact programmes. In all the Open Schools, print materials are the major and sometimes only source of learning. Student assignments and their frequency range from mandatory to liberal flexibility. In the Andhra Pradesh Open School a 20 per cent weighting is given to the assignments in final examinations. In the case of some Open Schools the completion of a minimum number of assignments is essential to be able to sit for examinations. The State Open Schools of Madhya Pradesh, Karnataka, Haryana and West Bengal follow the norms of NOS in identifying the Study Centres and payment for the student services on a pro-rata basis.

The major objectives of the distance education system as envisaged by the State Open Schools in different states can be summarized as follows:

- to provide educational opportunities to school-leavers, drop-outs, working adults, housewives, and learners from distant and remote areas;
- to reach out to those who could not complete or continue their schooling due to sociocultural and economic reasons;
- to provide a parallel mode of non-formal education and add an alternative to formal schooling;
- to lighten the burden on the formal schooling system;
- to promote an open distance learning system of education.

Table 7 gives the amount of students enrolled in different Open Schools.

Table 7. Enrolment in different State Open Schools (1998-1999)

Name of the school and state	Open Schools enrolment (a)		Enrolment in Open Schools as % to the total enrolment (b)	
	Secondary (Xth Standard)	Senior secondary (XIIth Standard)	Secondary	Senior secondary
Open School Madhya Pradesh	15,565	3,830	631,897 (2.46)	400,660 (0.96)
Open School Rajasthan	35,000	25,000	332,333 (10.53)	199,199 (12.55)
Open School Haryana	7,819	6,403	204,867	97,723
Open School West Bengal	2,883	-	424,445 (0.68)	-
Open School Tamil Nadu	1,239	-	768,462 (0.16)	-
Open School Karnataka	160	-	459,892 (0.03)	-
Open School Andhra Pradesh*	80,201	-	1,848,814 (4.34)	-
Patrachar Vidyalaya Delhi	18,269	10,794	326,117 (5.60)	369,265 (2.92)
National Open School	77,931	47,345	8,549,248** (0.91)	3,355,100** (1.41)
Total	231,248	86,969	8,549,248 (2.70)	3,355,100 (2.59)

* The Andhra Pradesh Open School enrolment for VI and VII Standard only.

** Total enrolment in the country.

(a) Source: Enrolment data from different open schools collected through questionnaire by author.

(b) Source: Selected Educational Statistics, Department of Education, MHRD, Government of India.

Figures in parentheses indicate percentage of students enrolled in open schools to the total enrolment at secondary stage.

India has made rapid progress in distance education at secondary level. With one National Open School and eleven state-level Open Schools, India has the single largest distance education system in the world, both in terms of number of institutions and enrolment at secondary level (Mukhopadhyay and Parhar Madhu, 1997). However, still many more educationally disadvantaged states are yet to venture to adopt the distance education system to improve educational progress.

Chapter IV
The National Open School (NOS)

Mission and objectives

The National Open School was set up with the mission of universalization of education, enhancing social equity and justice and creating a learning society. It aims to reach out to a prioritized client group, which includes school drop-outs and marginalized groups, namely rural youth, urban poor, girls and women, Scheduled Castes and Scheduled Tribes, the handicapped and ex-servicemen. Besides, NOS gives employed adults who are keen to improve their educational level, a chance to move upward in their jobs. Thus the main objectives of the National Open School are envisaged as:

- to provide opportunities for continuing and developmental education to interested learners, through courses and programmes of general education, life-enrichment modules and vocational courses up to pre-degree level;
- to provide consultancy services and to engage in model-building in close collaboration with states and other agencies or institutions;
- to serve as an agency for effective dissemination of information related to distance education and open learning;
- to identify and promote standards of learning in the distance education system and Open Schools, which may be applied in different parts of the country through research and evaluation, and to maintain standards of equivalence with the formal system, while keeping its own distinct character.

NOS courses and processes

The National Open School started with the strengthening of already existing Open School courses. In other words NOS built upon the strong foundation and structure of the Open School Project that had already been developed during 1979-1989.

NOS got a head start with an elaborate organizational structure and authorities. It also inherited a decade of successful experience from the Open School Project, which was subsumed in it. While continuing the courses that were run by the Open School Project, NOS also undertook curriculum and material revision for secondary-level courses in 1991-1992. It also introduced vocational courses in different areas in 1992. National Open School offers three levels of academic courses and three other programmes:

Academic courses

1. Foundation or Bridge Certificate Course, equivalent to 8 years of schooling;
2. Secondary Certificate Course, equivalent to 10 years of schooling;
3. Senior Secondary Certificate Course, equivalent to 12 years of schooling.

Vocational and others

4. Vocational Education Programme ;
5. Life Enrichment and Continuing Education Courses;
6. Open Basic Education.

Foundation or Bridge Course

This course is offered more as a basic course for secondary education and is primarily meant for those who have never attended school but can read and write and have the motivation to learn. Students above the age of

14 years, who due to some reason could not complete their VIII years of schooling, can enrol in the foundation course. This course aims, in another way, at the universalization of elementary education and includes in its target group about three million neo-literates from all over the country. The course enables students to acquire functional and basic-level competence in languages, mathematics, science, knowledge and awareness of national history, culture and heritage, environment, etc. The learning materials are based on Minimum Levels of Learning (MLL) and are of comparable standards to that of any other equivalent education system.

Secondary Certificate Course (X standard)

All those persons who have had a minimum of eight years of schooling and have turned 15 years can seek admission to this course. The course offers a choice of eleven languages and eight other subjects including vocational subjects. A minimum of five subjects, including one language, either English or Hindi, is compulsory. However, a student is free to choose other subject(s) in addition to the compulsory subjects already selected.

Senior Secondary Certificate Course (XII standard)

Those who have passed the X standard or equivalent examination are eligible to take this course. Students have a wide range of subjects to choose from. A minimum of five subjects, including one language, is compulsory. Unlike in formal schooling where students at this level have to opt for a particular stream of subjects, students at NOS can choose any combination of subjects. For example a student is free to opt for a combination consisting of both science and humanities together.

In addition to this, NOS allows and encourages learners to choose vocational subjects in combination with academic subjects at both secondary and senior secondary levels. Apart from these three levels of academic courses, the National Open School has the following three important programmes:

(i) Vocational Education Programme

The Vocational Education Programme was introduced in 1992. The National Open School has been a pioneer in vocational education at the school level through distance education and the open learning system. Vocational courses are offered independently or in combination with academic subjects at secondary and senior secondary levels. When taken independently, the duration of such courses is either six months or one year. The courses pertain to various socio-economic areas such as agriculture, business and commence, engineering and technology, the paramedical and health field, home science, humanities, applied science and general service-sector areas. Certificate courses in computer applications and library sciences are also offered under the Vocational Education Programme. NOS has signed a Memorandum of Understanding (MOU) with well-established Vocational Institutes across the country where the students can have their practical sessions.

(ii) Life-Enrichment and Continuing Education courses

NOS offers a number of 'Life-Enrichment courses' primarily aimed at teachers, principals of schools, executives in public and private-sector enterprises and also for the general public. The life-enrichment courses, such as Health for All, Science for All, Environmental Science, enrich the target groups in areas of universal concern and equip them to propagate their merits and demerits.

(iii) Open Basic Education

In order to help in achieving Universal Elementary Education (UEE), NOS is planning to launch the Open Basic Education Project for out-of-school children in the 6–14-year age group and adult learners. It will consist of three levels: Preparatory (A); Primary (B); and Elementary (C). These are equivalent to the formal school standards of III, V and VIII respectively. The programme will primarily aim to enable neo-literates to access school

education through the Open Schooling channel. Besides offering academic subjects, the curriculum also involves vocational input to suit the life activities and occupational needs of the learners.

Medium of instruction

In order to promote distance education in the different states, NOS has introduced the use of several vernacular media for the Secondary Course. Apart from Hindi and English, instruction is also imparted in Bengali, Urdu, Telugu and Marathi.

Environment building and admission

Before discussing the coverage of and enrolment trends in NOS, it would be beneficial to look at the process through which the concept of distance education has attracted public attention. The National Open School has had the advantage of being known as the Open School Project from 1980-1981, the year distance education was launched at secondary level. Wide publicity was given to the distance education scheme through advertisements in local, regional and national-level newspapers, radio talks, TV discussions, displays of slides in film theatres, distribution of leaflets and meetings at the grass-roots level in the villages, factories, Development Blocks, Central Reserve Police Force and Army Corps, etc. After establishing the National Open School in 1989, efforts were continued with more vigour and large coverage to increase awareness and to spread information about the prospects of NOS across the country. Networking with formal educational institutions across the country has been an important method adopted for expanding the outreach of NOS.

Admission procedure

NOS serves its students through a decentralized network of Study Centres called Accredited Institutions (AIs) for academic courses, and Accredited

Vocational Institutions (AVIs) for vocational courses. A committee of experts is responsible for accreditation of Study Centres on rigorous screening of applications on the basis of prescribed criteria and inspection of the institution. The Accredited Institutions are spread all over the country. In the year 1990, for the first time, admissions were conducted through 143 Accredited Institutions spread over different states. Prior to this, registration of students was done directly by NOS, either at its counter or by post. Currently there are 645 Academic AIs and 250 AVIs located in different parts of the country. Each AI can admit a maximum of 500 and should have a minimum of 50 students, on the principle of 'first come first served'. In the case of vocational courses, students are admitted in a limited number.

The admission notices are inserted in the leading national and local newspapers at the start of the admission session, giving the names of AIs in the respective states along with other information. Along with a prospectus, the guidelines for admission are provided to AIs. The AIs sell the prospectus, receive the filled-in application forms with the fees, issue the provisional admission letters and forward the application forms and fees to NOS. The admission unit in NOS scrutinizes the applications with respect to the eligibility criteria and the final list of the candidates and identity cards of the students are printed and sent to the AIs. NOS conducts admissions once a year, but is planning to introduce 'walk in admissions' (i.e. possible at any time of year).

Fee structure

The National Open School charges a very nominal fee to students seeking admission to different courses. The present fee structure is given in *Table 8*.

Table 8. NOS fee structure

Course	General category		Exempted category
	Male (without late fee) Rs.*	Female (without late fee) Rs.	SC/ST, ex-servicemen/ handicapped Rs.
Bridge/ Foundation Course (for all 5 subjects)	200**	nil	nil
Secondary Course (i) For 5 subjects (ii) For an additional subject	800 120	600 120	550 120
Senior Secondary Course (i) For 5 subjects (ii) For an additional subject	925 145	725 145	625 145

* One US dollar is approximately equal to Rs.45.
** Cost of material to be supplied
Source: NOS Prospectus.

The fee structure as shown in *Table 8* above clearly indicates that NOS gives special treatment to women and marginalized groups, such as SC/ST, handicapped and ex-servicemen. While the male students have to pay Rs.200/- (without late fee) for admission to the Foundation Course, the marginalized groups do not have to pay any fee for this course. Similarly, for other courses, female students and students belonging to SC/ST, ex-servicemen and the handicapped category pay 25 to 30 per cent less than the male students belonging to the general category. However, there is no concession in case of an additional subject taken by the student belonging to any category. The fee paid by the students at the time of admission includes the cost of material to be supplied. A late fee of Rs.50/-, if applicable, is payable in all courses and by all categories of students if the admission is sought after the deadline. The registration fee paid by students includes the cost of material and the personal contact programme cost.

Students seeking admission for the part credit/readmission programme at both secondary and senior secondary levels pay a Rs.200/- registration fee, and Rs.120/- and Rs.145/- per subject as course fee for secondary and senior secondary levels respectively. The total admission fee payable by a student seeking readmission/part credit does not, however, exceed the full fee payable by a student at the time of fresh admission.

Examination system

In 1989, the Open School Project was amalgamated with the National Open School. Subsequently a mechanism for examination and certification was established in NOS. In 1990, the Government of India authorized the National Open School to conduct examinations and act as the certifying authority at the secondary and senior secondary levels. As a result, the National Open School became a national board for secondary and senior secondary examinations, similar to the Central Board of Secondary Education (CBSE) and the Council for the Indian School Certificate (CISC) Examinations.

Recognition of NOS certificates

The certificates awarded by NOS to its students after qualifying in secondary and senior secondary examinations have been recognized by various boards/universities for admission to higher courses conducted by them. So far 116 boards/universities have recognized the NOS courses. The Council of Boards of Secondary Education (COBSE) and the Association of Indian Universities (AIU) have recognized NOS courses as equivalent to secondary and senior secondary levels for admission to courses of higher education and for employment through various agencies in various sectors.

Organizational structure

The National Open School is registered as a society under the Societies Registration Act 1860 and was established by the Ministry of Human Resource

Development, Government of India. As it is partly funded by the Government of India, the organization is largely governed by government rules, although it is an autonomous organization. For efficient management of the National Open School, the following bodies have been constituted:

General body

The highest statutory body in the National Open School is the General Body. This body includes representatives from the Ministries of Human Resource Development, Personnel and Information and Broadcasting, the state governments, and experts from different sectors. The General Body is the apex body of NOS. The Union Minister for Human Resource Development is the President of the General Body.

Executive Board

The Executive Board has been vested with all powers to manage the affairs of the NOS and to enable it to function smoothly and effectively. The Board makes all policies and programmes of action, takes appropriate decisions, ensures effective implementation and exercises the review functions of the Society. The Chairman of NOS is the Chairman of this Board. Other members of the Board include nominees of the Department of Education, the Ministry of Human Resource Development and its integrated Finance Division.

The Executive Board is assisted by an establishment committee, which looks after the smaller establishment issues. The Finance Committee scrutinizes the accounts and budget estimates and makes recommendations on proposals for new expenditure and other financial matters. The Finance Committee is composed of the Heads of the Departments of NOS, nominees of the Department of Education, Ministry of Human Resource Development and its integrated Finance Division, and financial and management experts.

The General Body, Executive Board, Finance Committee and the Establishment Committee are headed by the Chairman of NOS, who is also the executive head of the school. The Chairman is appointed by the Ministry of Human Resource Development, Government of India. By placing the executive head as leader of the policy-making and implementing bodies, an effort has been made to structurally safeguard the autonomy of the institution. NOS has a three-tier administrative structure with well-defined roles and functions.

The Chairman, being the highest authority, is supported by the heads of administration and of the academic and examination departments. The National Open School is divided into three departments, namely (i) academic, (ii) administration, and (iii) examination. The academic department includes vocational education, media, student support services, life enrichment and continuing education programmes, basic education, planning and evaluation, and academic open secondary and senior secondary education. The administration department includes publications, finance and accounts, materials distribution, admissions, and other administrative functions such as personnel, purchasing, and land maintenance. The examination department takes care of all aspects related to conducting examinations, as well as declaration of results and certification.

Regional Centres

The enormous number of Study Centres spread all over the country and the massive number of students makes streamlining and co-ordination a difficult and challenging task. Therefore, eight regional centres have been established in different parts of the country so that the NOS programmes can be effectively implemented and monitored.

The organizational structure of NOS is included in *Appendix 1*.

Chapter V
Enrolment trends in NOS

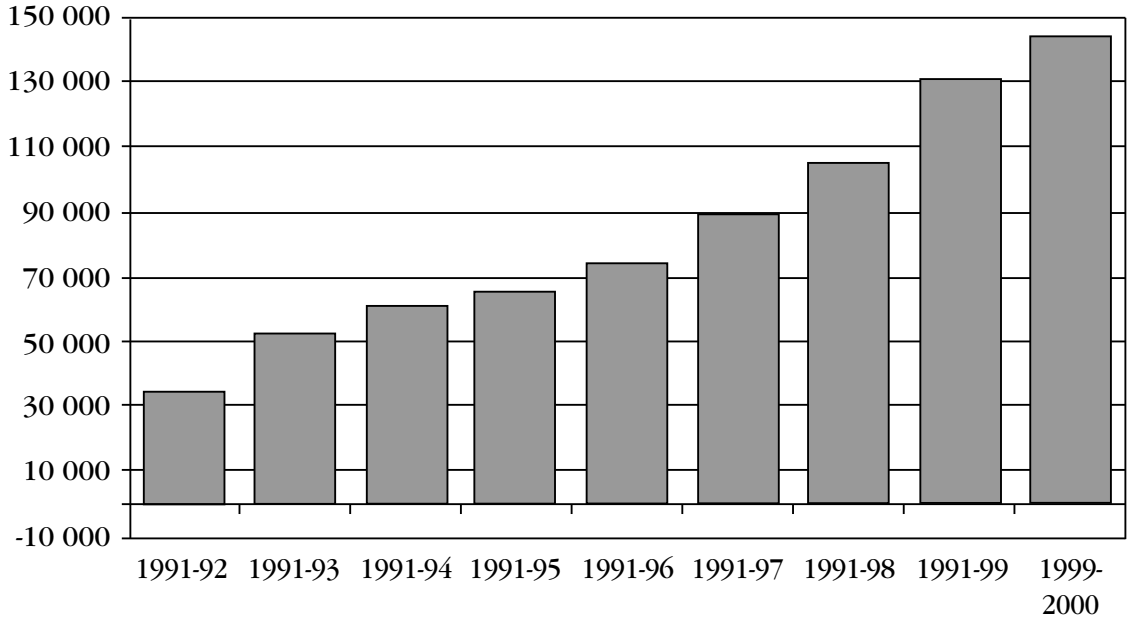
Secondary education is a crucial stage for students, since after this they either move to higher education or enter the world of work. In both cases the success of the students depends on the credibility and quality of education they obtain from the distance education method, as they have to compete with those coming from the conventional system of education. Enrolment of students in NOS can be considered as one of the indicators of the popularity, acceptance and credibility of distance education. The extent of student enrolment, firstly in the Open School Project and later in NOS, evidently proves that the distance education system at school level is not only successful in providing access to education, but has also gone a long way, with an impressive increase in participation, from an enrolment of 1,676 students in 1981 to 0.14 million students enrolled in the year 1999-2000. Thus, NOS has the distinction of being the single largest institute in terms of number of students being served by distance education at secondary level. The NOSP under the CBSE was able to increase the annual enrolment of students from a mere 1,672 in the first year to 17,052 by 1988-1989. In fact this substantial increase in student enrolment in the first phase of National Open School was one of the reasons that led to the establishment of NOS as an autonomous organization in 1989. NOS, as an autonomous body of distance education in the country, has experienced an unprecedented record of growth in student enrolment in the past decade (*Table 9, Figure 2*).

Table 9. Enrolment (in all courses) per year from 1990-1991 to 1999-2000

Year	Enrolment	Percentage increase
1990-91	40,884	-
1991-92	34,781	-14.93
1992-93	53,567	59.74
1993-94	62,283	16.91
1994-95	66,635	4.47
1995-96	75,433	8.41
1996-97	90,612	26.76
1997-98	106,460	18.38
1998-99	132,222	20.04
1999-2000	145,329	9.91

Source: NOS annual reports.

Figure 2. Enrolment growth rate per year



After the establishment of NOS as an autonomous body, the students of the National Open School Project (NOSP) were transferred to NOS. In addition to these, a staggering number of students – 40,884 – joined National Open School in a single year (1991) thus increasing its strength many times. This was an all-time record and way ahead of the Open School Project. Therefore, it can be said that NOS had a head start. Between 1991 and 1999-2000, enrolment increased three and half times. This remarkably significant rise in enrolment may be attributed primarily to the policy of decentralization of admissions through the network of Accredited Institutions, and secondly to the rigorous efforts made by NOS to develop linkages with the formal education system, particularly the examination boards and universities that have accorded recognition and equivalent status to NOS certification. In addition to organizational aspects, NOS' inherent quality of content and process can be held responsible for its credibility and the increase in student strength. The NOS syllabus and curriculum, although different, are equal in standard to that of CBSE and other state boards of secondary education. The flexibility, feasibility, innovative courses, high quality instructional materials and low cost have also contributed significantly to increasing student numbers. The transfer of credits from the formal system, the accumulation of credits etc. have also encouraged a large number of students from the formal system of CBSE to join NOS in order to obtain secondary and senior secondary-level certification.

Enrolment in different courses

NOS offers bridge courses equivalent to 6th, 7th and 8th grade besides secondary, senior secondary and vocational courses. However, until 1988 the Open School Project was running only bridge and secondary-level courses. Exclusive vocational courses were introduced during 1992-93 by NOS. *Table 10* gives a brief description of enrolment in different courses (see also *Figure 2*).

Table 10. Enrolment in NOS, per course, from 1990-1991 to 1998-1999 (%)

Year	Bridge course	Secondary	Senior secondary	Vocational	Total (number)
1990-91	6.47	51.11	42.43	0.00	40,884
1991-92	3.04	60.19	36.77	0.00	34,781
1992-93	2.27	56.47	37.68	3.59	55,559
1993-94	2.17	54.04	39.69	4.11	64,953
1994-95	1.20	50.98	42.82	5.00	67,858
1995-96	0.81	58.51	37.75	2.92	73,399
1996-97	0.54	63.30	33.27	2.89	93,042
1997-98	0.58	59.06	34.96	5.40	110,142
1998-99	0.47	58.94	35.81	4.78	132,222

Source: NOS annual reports.
Note: Vocational courses started in NOS in 1992-1993.

Table 10 shows that during 1998-1999, a high majority of students enrolled in NOS were in secondary courses, constituting 59 per cent of the total enrolment. The next best enrolment figure comes from the senior secondary courses (35.81 per cent). About 5 per cent of students enrolled in vocational courses and only a little over 0.4 per cent in the bridge course. A further study of the enrolment figures also indicates that the number of aspirants for the secondary course has either remained steady or has gone up during the past decade. The percentage of students joining the secondary course ranged from 51 to 59 per cent during the period from 1990-1991 to 1998-1999. In some of the years under study, the enrolment in the secondary course was more than 60 per cent of total enrolment. There was a decline in enrolment in the senior secondary course, from 42 per cent to 36 per cent between 1991

and 1999, although there was no decline in enrolment in absolute numbers. The large increase in secondary courses and the steep decline in bridge courses is mainly due to the relaxation of norms regarding admission to secondary courses, as well as the flexible system making it possible to directly join the secondary course. Simultaneously, there has been a marginal increase in the number of students opting for vocational courses, although this is still a long way behind the other two streams. The low proportion of vocational education can be attributed to restricted admission for the want of skill-development facilities.

Enrolment and growth rate at secondary and senior secondary level

The number of students enrolled in different courses during the past decade has been analyzed to examine the rate of growth and trend of enrolment in different courses.

Table 11. Growth rate of enrolment in NOS (academic courses)

Year	Secondary course		Senior secondary course		Vocational courses	
	Enrolment	% of increase	Enrolment	% of increase	Enrolment	% of increase
1990-91	20,899	-	17,351	-	-	-
1991-92	20,935	0.17	12,790	-26.29	-	-
1992-93	31,375	49.87	20,932	63.66	2,887	-
1993-94	35,098	11.87	25,777	23.15	2,670	-7.51
1994-95	34,593	-1.44	29,054	12.71	1,335	-100
1995-96	42,946	24.15	27,711	-4.62	3,125	134.08
1996-97	58,891	37.13	30,958	11.72	3,848	23.14
1997-98	65,047	10.45	38,507	24.38	5,822	51.30
1998-99	77,931	19.81	47,345	22.95	-	-

Source: NOS annual reports.

The enrolment data (see *Table 11*) show that the number of students joining secondary courses has continuously increased since 1991. A trend of steep growth can be remarked when one compares the figures from 1990 and 1998. Students' enrolment increased almost four times from that of 1990-1991 and has continued its upward trend. The highest and lowest growth rates recorded in enrolment figures are 0.17 per cent and 37.13 per cent respectively. Although enrolment in the senior secondary course was comparatively lower than that of the secondary course, its strength nevertheless increased threefold between 1991 and 1999. The growth rate in enrolment in the senior secondary course varied from 63.66 to 11.72 per cent during the past decade. It may be noted that in one year, there was a negative growth rate for the secondary course (–1.44 per cent, 1994-1995), and in another year for the senior secondary course (–4.62 per cent, 1995-1996). This, however, was only a temporary phenomenon.

Vocational courses

Exclusive vocational courses were introduced for the first time in 1992-1993 and these attracted 2,887 students. There was a phase of decline in enrolment in 1994-1995 but since then no downward trend has been seen. In fact, by 1997-1998, enrolment had nearly doubled from that in 1992. In view of the facilities required for imparting practical skills in vocational courses, the number of students admitted to these courses has been restricted. Therefore enrolment in vocational courses could not grow at the same rate as that in the academic courses.

The vocational courses comprise a package course of six months and a one-year course. General, life-enrichment and stand-alone courses have higher enrolment ratios than other courses (see *Table 12*).

Table 12. Enrolment in vocational courses

Year	Package		Six-monthly vocational		One-year vocational		General and life enrichment		Stand-alone	
	Enrol-ment	Annual growth (%)	Enrol-ment	Annual growth (%)	Enrol-ment	Annual growth (%)	Enrol-ment	Annual growth (%)	Enrol-ment	Annual growth (%)
1992-1993	178	-	384	-	1,851	-	474	-	-	-
1993-1994	91	(–) 49	712	(+) 85	1,500	(–) 19	367	(–) 23	-	-
1994-1995	99	(+) 09	253	(–) 64	809	(–) 46	174	(–) 53	-	-
1995-1996	188	(+) 90	470	(+) 86	1,331	(+) 65	111	(–) 36	25	-
1996-1997	359	(+) 91	844	(+) 80	2,248	(+) 69	89	(–) 20	308	(+) 1 ,232
1997-1998	464	(+) 28	1,253	(+) 48	2,562	(+) 14	388	(+) 336	1,155	(+) 275

Source: *NOS annual reports.*

Enrolment per subject

National Open School offers plenty of choices. It has an in-built facility which allows for choice of subjects and combinations of subjects at secondary and senior secondary levels. At secondary and senior secondary levels, a minimum of five subjects and at least one language are compulsory. However, a student can opt for a maximum of two languages among his combination of subjects. The students can also select additional subjects according to their choice by paying extra fees for materials and examinations.

The subjects offered by NOS at secondary level are mathematics, science, social science, economics, commerce, home science, typing (English, Hindi and Bengali), and word processing (English). Besides Hindi and English, six regional languages are also offered. *Table 13* shows the frequency of subjects chosen by the students in the secondary course.

During the period under consideration, a majority of students opted for English (90 per cent), followed by Hindi. This needs to be understood from the perspective that this does not show an exclusive preference for a particular subject. Rather, many students opted for both English and Hindi, as these are compulsory subjects. Among the academic subjects, social science, science and economics are given preference by students. While the largest percentage of students (88 per cent) chose social science as one of the optional subjects, the next popular subject was science (62 per cent). Half of the students selected mathematics, whereas only 26 per cent of students chose economics and about 50 per cent preferred the commerce course as one of the subjects for study. Interestingly, only 18 per cent of students showed an interest for English typing in their scheme of studies. Due to the flexibility of the course, students can choose different combinations of subjects.

Subjects selected at senior secondary level

At the senior secondary level the choice is more varied and a student can opt for a science subject along with a course from the social sciences or humanities. Nearly 92 per cent of students chose English and 80 per cent opted for Hindi as one of the subjects of study.

The trend shows that the different science subjects and mathematics are chosen by as few as 18 to 11 per cent of students. The highest percentages of students enrolled in social science courses such as political science (56.82 per cent), history (52.34 per cent) and economics (48 per cent). Subjects such as commerce, home science and geography were selected by about 20 per cent of students. Quite surprisingly, as at secondary level, semi-professional and vocational courses such as typing courses are not very popular.

Table 13. Enrolment per subject (1994-1995)

Secondary			Senior secondary		
Subjects	Number of students		Subjects	Number of students	
	%	No.		%	No.
Hindi	72.53	26,667	Hindi	80.17	23,292
English	90.58	33,304	English	92.72	26,940
Bengali	7.10	2,612	Mathematics	17.08	4,962
Mathematics	51.59	18,964	Physics	17.78	5,167
Science	62.68	23,043	Chemistry	17.48	5,079
Social science	87.95	32,333	Biology	12.95	3,761
Commerce	52.22	19,202	History	56.16	16,315
Economics	26.23	9,664	Geography	33.04	9,601
Home science	40.07	14,736	Political science	61.93	17,993
Typewriting	18.93	6,961	Economics	48.61	14,122
Word processing	1.01	372	Commerce	17.13	4,978
-	-	-	Accountancy	13.31	3,865
-	-	-	Home science	23.45	6,812
-	-	-	Typewriting	16.96	4,928
-	-	-	Stenography	1.59	460
-	-	-	Secretarial practice	4.91	1,427
-	-	-	Word processing	1.07	312

Source: NOS annual reports.

Enrolment in regional languages

The languages of instruction at the National Open School are English and Hindi. However, instruction is also offered in a few regional languages such as Telugu, Bengali, Urdu, Marathi and Gujarati. *Table 14* shows the language of instruction chosen by students during the 1997-98 academic year.

Table 14. Enrolment per language of instruction (1997-1998)

Course	Hindi	English	Regional
Bridge	54.06 (233)	45.94 (198)	-
Secondary	66.12 (44,432)	28.98 (19,471)	4.90 (3,291)
Senior secondary	58.43 (22,690)	41.57 (16,145)	-
Total	63.28 (67,355)	33.63 (35,814)	3.09 (3,291)

Source: NOS annual reports.

At secondary level, a majority of students (66 per cent) preferred Hindi as language of instruction compared to nearly 30 per cent who chose English, and only 4.89 per cent who opted for regional languages. One of the reasons for this high preference for Hindi is the fact that the majority of students enrolled in NOS are from the Hindi-speaking states, such as Delhi, Haryana, Rajasthan, Uttar Pradesh etc. Another factor is that a large number of students, especially from government schools in Delhi, enrol in NOS after their failure in the CBSE examination. Due to the facility of credit transfer between the CBSE and NOS, it becomes a golden opportunity for failed students to sit for the NOS final examination in any subject of their choice and obtain a pass certificate from NOS. For instance, if a student fails in mathematics, he/she can choose any other subject from the NOS scheme.

Among the regional languages, in 1997-1998 a greater percentage of students opted for Bengali than for any other language. At the Bridge Course level, 54 per cent of students chose Hindi as language of instruction and 46 per cent opted for English.

Equity in access

Against the background of the above observation, it will be easier to discuss the spread of NOS and the realization of equity in terms of access to secondary education. NOS has prioritized client groups from amongst those who are educationally and socio-economically most disadvantaged and has maintained a national character in its spread across the country. NOS has specified the priority clientele as consisting of girls and women as a category, Scheduled Castes and Scheduled Tribes as a social group, rural people, urban poor, both full- and part-time employed, and the 35+ age group (Annual report, 1991-1992). An attempt has been made to examine enrolment in terms of the intended clientele. The analysis of enrolment covers geographical location (regional, state and rural/urban), gender, social groups such as Scheduled Castes and Scheduled Tribes, age group, and the economic and educational background of students.

Regional profile of clientele

NOS has grouped different states and Union Territories into five regions, in addition to Delhi as the National Capital Territory. *Table 15* shows enrolment in NOS by region during the last seven years.

NOS has the distinction of representing students from all over the country. However, the response to distance education varies widely among different regions in the country. The enrolment pattern in the last seven years shows

that the region of the National Capital Territory of Delhi has had most enrolments. During 1999-2000 more than one third of the total students covered by NOS were from Delhi (39.48 per cent). The next highest enrolment came from the northern region (25.50 per cent), followed by the southern region (13.89 per cent). In all the years, Delhi and the northern region have consistently had the highest proportion of enrolled students.

Table 15. Enrolment per region from 1993-1994 to 1997-1998 (%)

Year	Region						
	Delhi	Northern	Eastern	N-Eastern	Southern	Western	Total
1993-94	39.13 (24,344)*	27.88 (17,350)	15.69 (9,763)	9.06 (5,637)	1.77 (1,103)	6.47 (4,024)	62,221
1994-95	30.80 (19,818)	35.65 (22,939)	13.22 (8,509)	11.63 (7,485)	2.49 (1,602)	6.20 (3,992)	64,345
1995-96	28.87 (20,559)	40.58 (28,898)	11.53 (8,208)	9.88 (7,036)	3.20 (2,276)	5.95 (4,238)	71,215
1996-97	35.31 (30,486)	32.48 (28,044)	12.08 (10,429)	10.54 (9,105	3.23 (2,787)	6.37 (5,497)	86,348
1997-98	36.54 (38,800)	29.45 (31,272)	13.65 (14,491)	9.20 (9,771)	5.31 (5,635)	5.84 (6,202)	106,171
1998-99	39.48 (47,797)	28.35 (34,323)	10.18 (12,326)	8.92 (10,796)	7.64 (9,253)	5.43 (6,579)	121,074
1999-2000	39.48	25.50	6.91	9.50	13.80	4.81	100 (145,329)

* Figures in brackets indicate the number.
Source: NOS annual reports.

Interestingly, there was a sudden and considerable increase in the percentage of enrolment from the southern region during 1999-2000. The overall participation from eastern, north-eastern and western parts of the country is very low and ranges between 5 and 10 per cent. In the last seven

years, some of the regions have shown a downward trend in terms of percentage of enrolment, although this is marginal. In the case of the eastern region, although enrolment figures have doubled, their proportion has considerably declined: from 15 to 7 per cent. The final analysis and observation of regional variations show that the facility of NOS is being used much more fully by the students of Delhi and the adjacent northern region than by students from other regions in the country. Very recently, the southern region has shown significant improvement in participation. The regional enrolment pattern does not provide the real picture of the geographical characteristics of NOS students, as all the states in a region may not necessarily have equal participation. Therefore, an analysis of enrolment by state becomes essential for examining equity in geographical terms. The enrolment figures per state, at two points in time, 1993-1994 and 1999-2000 (*Table 15*), were taken for comparison of interstate variation in NOS coverage.

Being a national organization, NOS has aimed to cover all the states and Union Territories, and has been successful in drawing students from almost all parts of the country, covering all states and Union Territories except one or two. This has mainly been possible due to decentralized admissions through Accredited Institutions which are spread all over the country without the exception of any state. However, when we examine the extent of participation, interstate disparities in enrolment are very sharp. In the year 1999-2000, Delhi and four other states (Haryana, Andhra Pradesh, Uttar Pradesh and West Bengal) together constituted 75 per cent of enrolment, while the students from the rest of the states and Union Territories formed only one quarter of the total student population in NOS. And only two states (Haryana and Andhra Pradesh) had a representation of 13 per cent, whereas two other states (Uttar Pradesh and West Bengal) claimed only 4 to 5 per cent, and all the other states and Union Territories had an enrolment representation ranging from 0.03 to 3 per cent. It must be noted that there has been no sudden rise in enrolments from Delhi, rather there has been a consistent increase in numbers over the years. In absolute terms, the enrolment figures of Delhi in NOS went up from 20,000 in 1991 to 57,373 in 1999-2000.

Table 16. Enrolment per state for 1993-1994 and 1999-2000

State	1993-94		1999-2000	
	Enrolment	Percentage	Enrolment	Percentage
Delhi and NCT				
Delhi	24,344	39.45	57,373	39.48
Northern region				
Haryana	8,399	13.61	19,127	13.16
Himachal Pradesh	959	1.55	2,847	1.96
Jammu and Kashmir	141	0.23	315	0.22
Punjab	484	0.78	1,588	1.09
Rajasthan	1,917	3.11	3,553	2.44
Uttar Pradesh	4,730	7.67	7,566	5.21
Chandigarh	720	1.17	711	0.49
Eastern region				
Bihar	1,409	2.28	2,748	1.89
Orissa	118	0.19	485	0.33
Sikkim	736	1.19	1,354	0.93
West Bengal	7,082	11.48	6,136	4.22
Andaman & Nicobar Islands	427	0.69	669	0.46
N-Eastern region				
Assam	83	0.13	503	0.35
Arunachal Pradesh	1,287	2.09	3,224	2.22
Manipur	1,234	2.00	5,711	3.93
Meghalaya	24	0.04	277	0.19
Mizoram	887	1.44	1,589	1.09

Nagaland	1,609	2.61	2,508	1.73
Southern region				
Andhra Pradesh	427	0.69	18,501	12.73
Kerala	151	0.24	470	0.32
Tamil Nadu	259	0.42	328	0.23
Karnataka	259	0.42	713	0.49
Pondicherry	17	0.03	37	0.03
Western region				
Maharashtra	2,556	4.14	4,147	2.85
Madhya Pradesh	1,004	1.63	1,756	1.21
Goa	292	0.47	773	0.53
Gujarat	151	0.24	320	0.22
Total	**61,706**	**100.00**		**100.00**

Note: The percentages given are of total enrolment in NOS.
Source: NOS annual reports.

Surprisingly, certain educationally disadvantaged states, such as Bihar, Uttar Pradesh, Madhya Pradesh and Orissa have not taken advantage of the opportunity offered by NOS. Similarly, the southern states, except Andhra Pradesh, have shown a very poor response to NOS. One possible reason for this could be difficulties with the medium of instruction, but this seems a bit odd considering the fact that although Bengali was introduced as a medium of instruction, the State of West Bengal showed a negative growth rate between 1994 and 2000. Another reason could be the availability of State Open Schools and correspondence schools, as in the case of West Bengal, Madhya Pradesh, Tamil Nadu and Karnataka, or else the students in such states could be obtaining better educational opportunities in their own states.

However, two other possible causes could be the disparity of Accredited Institutions and the difficulty in following the NOS course structure. In fact, in terms of number and structure, the Accredited Institutions are unequally distributed over the states. This in turn results in interregional variation in enrolment in NOS. The other reason is that the students at times find it difficult to follow the course structure of NOS, which is on a par with the CBSE, one of the best in secondary and senior secondary education in the country, but considered to be higher in standard compared to the state-level syllabus. This results in lower enrolment from some states, ultimately bringing interstate variation in admission. However, considering the large size of the country, geographical distance, levels of educational development, communication facilities and cultural variation, it would not be an easy task for one National Open School to achieve equity in terms of its coverage across the country.

Rural/urban differences

In India the net attendance ratio at the secondary level is 22 per cent in total and 17 per cent for females in rural areas, as against 40 per cent in urban areas (Selected educational statistics, 1997-1998). The lower participation in secondary education in rural areas is due to several factors. The most prominent among them are poor infrastructure (lack of secondary schools), socio-economic problems, high opportunity cost, etc. This is not only associated with formal education but has also adversely affected continuing education. Another factor that affects secondary education is the high rate of failure and drop-out.

Distance education is one of the more effective models for providing access to secondary education in rural and sparsely populated areas. NOS looks towards the rural areas as an important target. NOS enrolment data (*Tables 16 and 17*) show that during 1999-2000, nearly 59 per cent of enrolled students belonged to rural areas, whereas students from urban areas

constituted about 41 per cent of the total strength. There was a significant increase in rural representation, from 20 per cent during 1987-1988 (Sujatha, 1989) to 59 per cent in 1999-2000. However, among the students enrolled from Delhi, who constitute 30-40 per cent of total NOS students, nearly 87 per cent are from urban pockets and only a miniscule 13 per cent from rural areas (Gaba, 1995). One of the reasons for the low proportion of students from rural areas is the lack of access even to the Accredited Institutions, as most of these institutions are located in urban areas. Secondly, lack of awareness and information among rural people limits their participation. Another reason for higher urban representation can be attributed to the fact that large numbers of students who fail public examinations in urban areas at secondary level go to NOS for admission, carrying with them the credit of pass subjects from the public examinations.

Table 17. Rural and urban enrolment (%)

Year	Rural	Urban
1997-98	49.79	50.21
1998-99	64.77	35.23
1999-2000	58.52	41.48

Source: Gaba, 1998 and data collected from NOS.

In urban areas the minimum qualification required for lower-level jobs, such as peon (i.e. someone who performs unskilled labour), is secondary-level education. Since NOS provides an easy opportunity for qualifying in secondary examinations, many aspiring candidates for employment in lower-level jobs enrol in NOS. In this case they have the advantage of information as well as institutional access, and are motivated by employment opportunities. However in rural areas, such employment opportunities are scarce.

Priority groups

The mandate and priorities of NOS clearly enunciate its emphasis on serving the less-favoured sections and bringing an end to educational disparities across gender and social groups. Therefore, girls/women, Scheduled Castes and Scheduled Tribes have been considered as the target clientele. Since these sections are distributed across the country it is mandatory on the part of NOS to reach out to them.

Gender

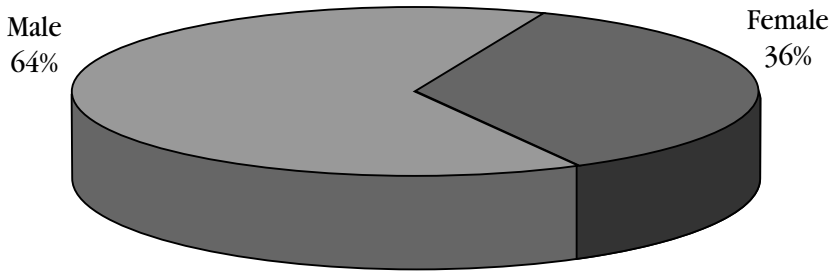
For various socio-economic and cultural reasons, girls have lower participation and a higher drop-out rate. Lack of access to schools at secondary level affects girls' participation more than boys'. Therefore, large numbers of girls remain outside the formal education system at the secondary stage. In view of this severe gender disparity, NOS from its inception has laid emphasis on improving the participation of girls/women in education. In order to promote their participation, NOS offers fee concessions to the tune of 25 to 30 per cent to girls/women. As a result of such efforts, girls' enrolment in NOS constituted 36 per cent of total enrolment during 1998-1999 (*Table 18*).

Table 18. Girls' enrolment in all NOS courses from 1990-1991 to 1998-1999

Year	Girls' enrolment		Total
	Number	Percentage	
1990-91	14,718	36.00	40,884
1991-92	14,136	40.64	34,781
1992-93	20,717	38.67	53,567
1993-94	22,253	35.73	62,283
1994-95	23,713	35.59	66,635
1995-96	23,824	31.58	75,433
1996-97	31,701	34.99	90,612
1997-98	34,742	32.63	106,460
1998-99	47,071	35.60	132,222

Source: NOS annual reports.

Figure 3. Proportion of girls in total NOS enrolment



The percentage of girls ranged between 40 and 31 over the 10-year period. The percentage of girls at the senior secondary level is slightly higher (32.53) than at the secondary level (30.26). The proportion of girls at the secondary level shows a certain consistency, it having remained around 32 per cent in the last five years (*Table 19*, *Figure 3*).

Table 19. Enrolment per gender, from 1995-1996 to 1998-1999

Year	Secondary			Senior secondary		
	Male	Female	% in total*	Male	Female	% in total**
1995-96	67.85 (30,708)	32.15 (14,548)	60.00	68.41 (18,982)	31.59 (8,765)	36.78
1996-97	65.14 (35,272)	34.86 (18,873)	59.75 (21,081)	67.48 (10,160)	32.52	34.48
1997-98	66.95 (42,771)	33.05 (21,111)	60.00 (26,133)	68.22 (12,085)	31.62	35.90
1998-99	67.47 (50,230)	32.53 (24,222)	42.04 (31,896)	69.74 (13,839)	30.26	34.59

* Secondary course enrolment as a percentage of total enrolment.
** Senior secondary course enrolment as a percentage of total enrolment.
Figures in parentheses indicate number of students.
Source: NOS annual reports.

Further, the participation of girls in terms of absolute numbers has increased over the years, showing a positive trend in NOS achievement. When we compare the proportion of girls' participation in NOS with that in formal education at secondary (38 per cent) and senior secondary levels (37 per cent), the figures are more or less comparable. While formal education has taken many decades to reach the present proportion of girls, NOS has the credit of having achieved the same level of participation in a much shorter period. However, considering the gender ratio and the magnitude of girls who are still outside the school system, the percentage of girls in NOS is still

far from reaching gender equity. The percentage should be at least 49 per cent in order to represent the sex ratio among the total population of the country. NOS needs to adopt some specific and concrete measures to enhance the participation of girls, such as special Accreditation Institutions, more concessions in terms of fees and examinations costs etc., since in many states formal education at secondary level is totally free for girls.

Equity among social groups

One of the primary objectives of education is to bring equity into the system and NOS has always embraced this principle. However, it is essential to define equity in the context of India. In a broad sense, equity refers not just to equality of opportunity but also to provision of an adequate safety net and positive discrimination in favour of the underprivileged. In India, groups such as the Scheduled Castes and Scheduled Tribes are the most deprived and discriminated against sections of society and therefore require special attention in order to bring them to the mainstream. The Scheduled Castes and Scheduled Tribes are not just educationally disadvantaged, but also suffer from numerous socio-economic developmental problems. Needless to say, their participation and subsequent performance in formal education are very low in comparison with other groups. What is significant is that Scheduled Castes constitute 16 per cent of the total population of the country and Scheduled Tribes around 9 per cent. Among them they thus constitute one quarter of the total population and without the improvement of their lot no developmental effort will bear fruit. Keeping this reality in mind, the Constitution of India has guaranteed special provisions for their socio-economic development. Accordingly, several welfare measures have been adopted in the sphere of education. They receive free education at all levels and are exempt from paying any kind of fees. At secondary level, they are provided with special schools, free hostels and boarding facilities. They also receive incentives, including free textbooks, uniforms, scholarships, and midday

meals. Both groups are provided with reserved admissions to higher and professional courses by relaxing marking and age limits. Jobs are also set aside for them in all government sectors. In spite of these special measures, Scheduled Castes and Scheduled Tribes lag far behind others in educational progress due to lack of access and poverty, coupled with high opportunity costs and a rigid formal education system.

The distance education system, due to its flexibility, has the means to achieve the goal of providing easy access to these sections. Through the open learning system, the students from these communities can save their opportunity cost, avoid travel, overcome the rigidities of the formal system in terms of subjects of study and pace of learning, can avoid fear of the teacher and social discrimination, have more freedom and take their own time to finish the learning.

NOS has envisaged these groups as priority clientele to promote education and also offers them a 50 per cent reduction in registration fees. We can assess their participation by taking a look at participation in NOS since its inception. One of the major indicators for measuring equity is enrolment (*Table 20*), and in order to look at the equity aspect in the form of educational access of disadvantaged communities, we need to go back to the starting point of the National Open School Project, i.e. 1981, the first phase of the open learning system.

Table 20. Scheduled Castes' and Scheduled Tribes' enrolment as a percentage of total enrolment

Year	Scheduled Castes	Scheduled Tribes	SC and ST
Phase I*			
1981-1982	9.38	3.40	12.78
1987-1988	15.00	3.30	18.30
Phase II**			
1991-1992	13.80	5.58	17.38
1994-1995	13.94	11.46	25.40
1995-1996	13.44	9.93	23.37
1996-1997	12.33	8.78	21.12
1997-1998	12.85	8.64	21.48
1998-1999	12.37	8.00	20.37
1999-2000	13.52	8.40	21.92

Source: * *Sujatha, 1989.*
** NOS annual reports.

In 1981, when the first batch of students enrolled in the Open School project, Scheduled Castes (9.38 per cent) and Scheduled Tribes (3.40 per cent) together accounted for 12.78 per cent of total enrolment. Their enrolment increased to 18 per cent by the year 1987-1988. The increase reflects mostly an increase on the part of Scheduled Castes.

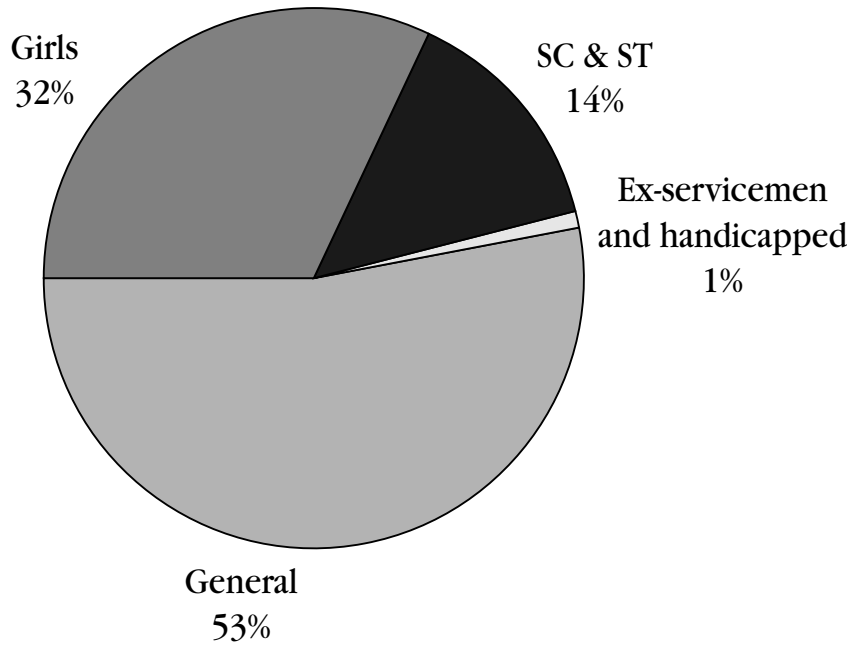
According to the latest data (1999-2000), Scheduled Castes and Scheduled Tribes together constitute a little over one-fifth of total enrolment (20.92 per cent). Their proportion in the last ten years has varied marginally except during 1994-1995 ,when they had their all-time-highest representation

(25.40 per cent). This figure is close to the proportion of their population in the country. The proportion of SCs and STs in NOS is higher than in the formal school system. In formal education, at secondary level, the percentage of Scheduled Castes and Scheduled Tribes was only about 10 per cent and 4 per cent respectively, making it 14 per cent together (*Selected educational statistics*, 1998-1999). Another important aspect is that in NOS, girl students from Scheduled Tribes constitute nearly 45 per cent, as against 37 per cent in the formal system.

Although the Open School offers only a limited subsidy in registration fees, a larger and larger proportion of Scheduled Castes and Scheduled Tribes are choosing it for continuing education. This evidently proves that the open learning system, to some extent, is able to meet the educational needs of disadvantaged groups. More importantly, the growth rate of enrolment of Scheduled Castes and Scheduled Tribes has been able to keep up with the overall rate of increase in enrolments in NOS. This indicates a positive trend set by NOS.

From the above analysis of enrolment from an equity perspective, we can safely conclude that NOS has been able to provide education to the intended clientele, if not fully, then to a large extent.

Figure 4. Total NOS enrolment distribution, 1998-1999



Girls, Scheduled Castes, Scheduled Tribes, the handicapped and ex-servicemen, considered as priority clientele, constitute a little less than 50 per cent of NOS students (*Figure 4*). But the problem is that equity cannot be equated with just enrolment, rather it requires total and holistic parameters of performance and possibilities. Further, mere enrolment does not reflect the complete utilization of access and, in the event of segregated data, it is difficult to put a specific number to students who actually complete the course and obtain the certificate. This requires further probing.

The open learning system has the intention of bringing education to interior areas, and in particular the rural areas, to reach the disadvantaged communities. But before that one must keep some facts in mind. First, it must be noted that if, despite all the incentives and provisions, the students from these communities have failed to come to the formal system, then there

is less chance that most of them will use the open learning system. Considering the benefits and facilities that the formal system provides to attract them, the open learning system needs to make some policy changes. Secondly, although the open learning system has been more successful in representing deprived groups, it remains insignificant considering the number and the magnitude of their population still outside the formal education system. Different strategies and more concessions are required to facilitate their increased participation in NOS. NOS must develop infrastructures such as motivational planning, better delivery mechanisms, and more frequent personal contact programmes to attract the disadvantaged groups.

Socio-economic levels

The original idea behind the establishment of the open learning system was to cater to the educational needs of people belonging to the lower strata of society. It was felt that due to various social and economic disparities, the participation of low-income groups in education was very low, particularly in the formal system. In order to change this trend it was decided that a complementary system, like open learning, would make deep inroads in bringing these groups back into the fold of education. A study conducted on the economic background of NOS students for the academic year of 1995-1996 (*Table 21*), gives a very interesting picture (Gaba, 1995).

Table 21. Economic levels of NOS learners (family income)

Annual income (in Rs.)	Percentage
Up to 12,000	36.35
12,001 – 24,000	35.00
24,000 – 36,000	16.03
Above 36,000	12.62

Source: Gaba, 1995.

The study shows that a majority of NOS students (36.35 per cent) are from households with an income level of up to Rs.12,000 per annum and that the next block of students (35 per cent) are from the income range of Rs.12,000-24,000. Similarly, 16.03 per cent of students come from families with an income level of Rs.24,000-36,000 and only 12.62 per cent of students belong to a rich category with income above Rs.36,000. This shows that NOS has been successful in providing educational access to a large segment of students from low-income groups. But the question remains whether this type of economic categorization is relevant to a vast section of the underprivileged, who are not directly concerned by the monetized economy. It would not be surprising if many of these groups had an income level well below the lowest level given by the study.

Educational background of students

A sample study conducted on the family background of NOS students (Gaba, 1995) reveals that a majority of students hail from families with some education. The study suggests that 36 per cent of students came from illiterate families and the educational background of 21 per cent of learners was up to primary education. While 15 per cent of students were from families whose educational background was of secondary level, the rest of the students were from households with above secondary-level education. In other words, a huge percentage of students enrolled were first-generation learners entering into secondary education. This educational background of families of learners will vary across geographical areas, social groups and according to gender. However, we do not have studies with cross-sectional analysis of this aspect.

Employed/unemployed ratio

The NOS objective specifies that the open learning system is to serve the employed and an older age group of learners to help them in continuing learning, and to improve the educational level of those who otherwise could

not go for secondary education. However, in reality, NOS has a large number of unemployed and younger age-group students. A study (Sujatha, 1989) shows that 58 per cent of enrolled students were unemployed as against the 42 per cent employed (1987-1988). Over the years, there has been a steep decline in the number of employed people and in the absence of recent data it is difficult to give a concrete picture of the above scenario. However, it is assumed that the figure may be only 10-15 per cent.

Age group difference

Although the open learning system was expected to provide opportunities of late-life learning to the older age group rather than to the younger age group, in reality this has not been the case. The profile of the students shows that students from the younger age group (14-19 years) constituted a majority compared to the older age-group students of 20 years and above (*Table 22, Figures 5 and 6*).

Table 22. Enrolment per age group in all courses from 1988-1989 to 1998-1999

Year	Age group (percentage of enrolment)		
	14-16 years	17-19 years	20 years and above
1988-1989*	32.14	50.94	16.82
1991-1992	27.06	42.80	30.15
1992-1993	24.65	42.71	32.64
1993-1994	22.71	44.83	32.46
1994-1995	23.46	44.54	33.00
1997-1998**	25.74	32.58	41.68
1998-1999**	27.23	32.02	40.74

Source: NOS annual reports.
* Sujatha, 1989.
** Age classification for these years are 14-16, 17-18 and 19 and above.

Figure 5. Enrolment distribution by age from 1988-1989 to 1998-1999

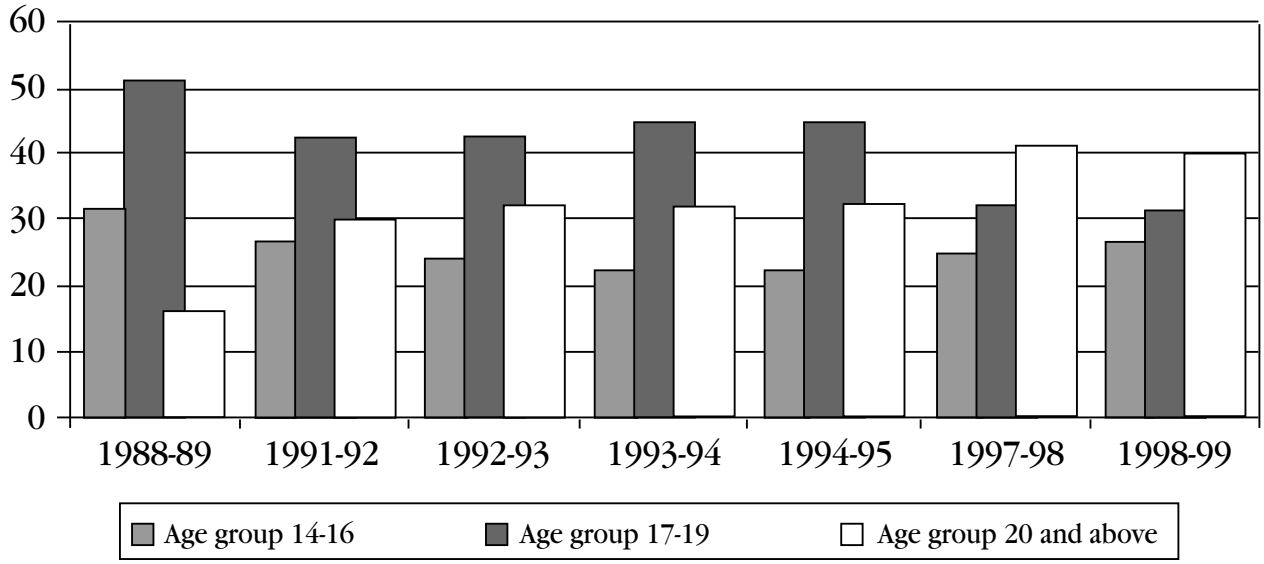
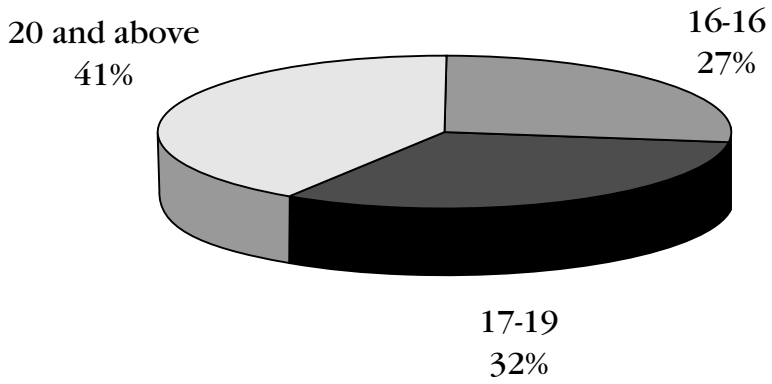


Figure 6. Enrolment distribution by age for the year 1998-1999



In fact, during 1987-1988, only 17 per cent of students were of 20 and above years of age as against 83 per cent from the 14-19 years age group. However, with increased enrolment, the proportion of older age-group students increased to one-third by 1994-1995 and to 40 per cent by 1998-1999. In spite of the increase in their proportion, the majority of students in NOS even

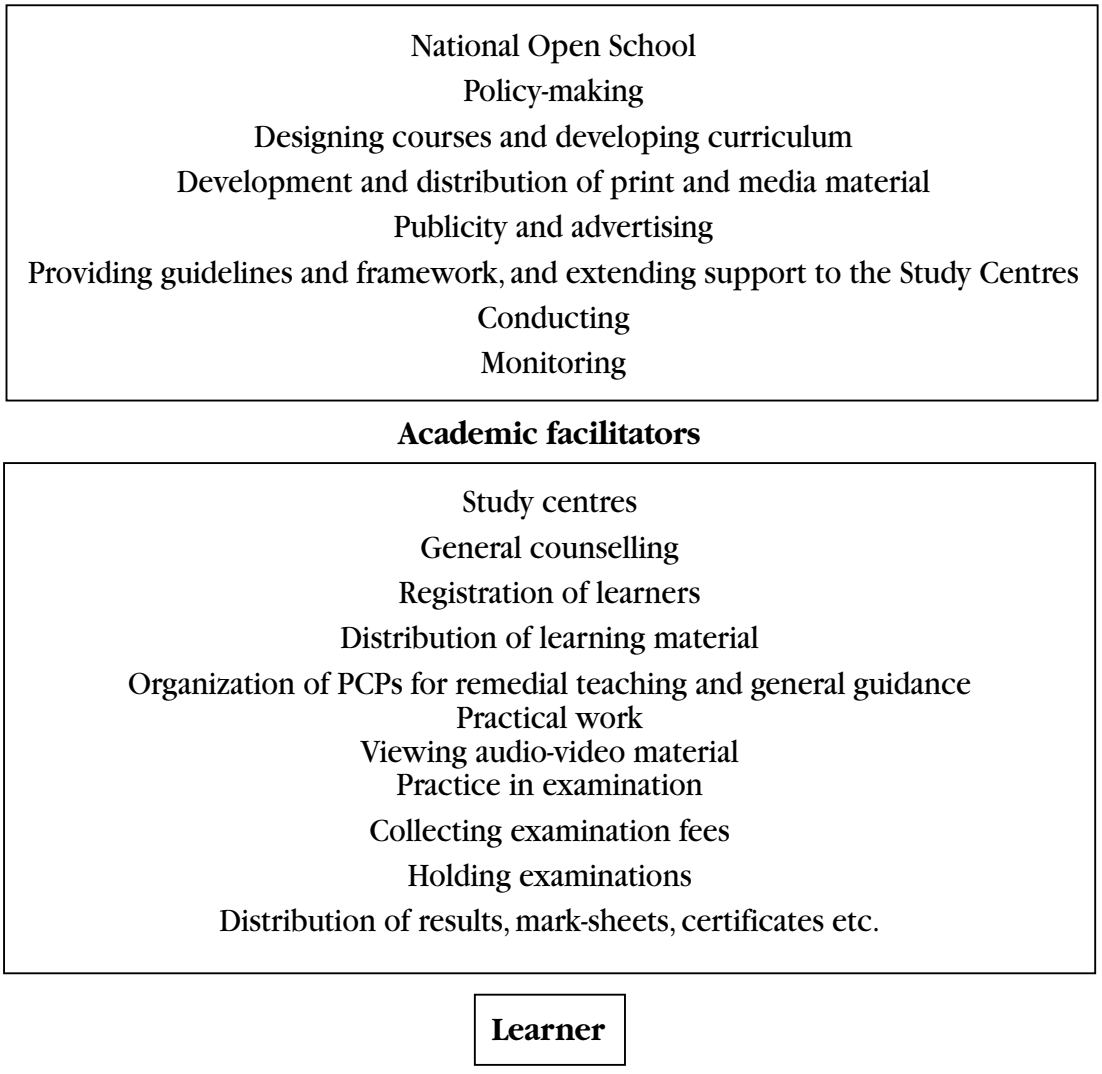
now belong to the lower age bracket. In fact the apparent increase in the proportion of the older age group from 33 to 40 per cent between 1997 and 1999 is not necessarily a real increase, rather it is due to having grouped the 19-year-old students with the older age group for these years. The younger age group of 14-16 years constitutes more than one-fourth (27 per cent) of total students. More than 60 per cent of students registered in NOS ought to be at the secondary level of the formal system. Similarly, a large percentage of students in the 19 and above age group consist of formal senior secondary school-stage students who opted to join the distance education stream. In the absence of any stringent criteria to gain admission into NOS except the 14-year age limit, many students who failed in the formal system are entering NOS in order to brighten their results.

The above analysis of various dimensions of NOS leads to several conclusions. First, there has been an impressive increase in enrolment, as well as in spread and coverage of NOS. NOS has been able to achieve some of its basic objectives, particularly equity in terms of covering the disadvantaged, lower socio-economic groups, rural populations and girls. Although NOS has been successful in improving its outreach among different states and regions, the interstate disparities still need attention. Secondly, although NOS has achieved parity with the formal system in bringing girl students, Scheduled Castes and Scheduled Tribes into the system and has at times surpassed it, there is still a lot left to be desired in view of the proportion of these groups still outside the education system. However, it would be naive and unfair to expect one national-level institution to meet the varied educational needs of a diverse country like India. It is also not possible to solve all the age-old discriminations and attain equity through the non-conventional distance education system in such a short period.

Chapter VI
Characteristics of NOS' delivery mechanisms

The distance education mode employed by NOS combines a multi-media approach with a multi-stage delivery mechanism that involves NOS, Regional Centres, Accredited Institutions/Study Centres and students (*Figure 7*).

Figure 7. NOS multi-stage delivery mechanism



Source: M. Mukhopadhyay, 1994.

National Open School

The activities of policy-making, designing courses, curriculum development, preparation, printing and distribution of learning materials, publicity and advertising, providing guidance and framework and extending support, as well as co-ordinating and monitoring Study Centres, take place at NOS level.

Regional Centres

The large number of Study Centres and the massive number of students make streamlining and co-ordination a difficult and challenging task. Therefore, besides the NOS headquarters situated at New Delhi, eight Regional Centres have been established in different parts of the country for effective implementation and monitoring of the NOS programmes. The Regional Centres are assisted by academic facilitators who help in monitoring and supervising the functioning of the Study Centres and in conducting the personal contact programmes for students. The academic facilitators are local resource persons and are paid an honorarium and conveyance charges for visiting the Study Centres and providing feedback.

Accredited Institutions/Study Centres

The major part of the programme delivery system includes registering students, distributing learning materials, offering counselling and guidance to students, organizing personal contact programmes, evaluating tutor-marked assessment and giving feedback, and enrolling for and conducting examinations. Most of these tasks are executed by the Study Centres, called Accredited Institutions (AIs). These Study Centres (AIs) are formal schools as well as some voluntary and non-governmental organizations recognized

by NOS as official Study Centres. The Study Centres (AIs) are chosen based on set criteria and their initiative and willingness to collaborate with NOS. The physical infrastructure facilities, lab and other equipment of the Accredited Institutions are supposed to be utilized for organizing the NOS Study Centres. Normally the Principal/Vice-Principal/senior most teacher of the school works as the co-ordinator of the NOS Study Centre. The core staff and teachers work on a part-time basis. The Study Centres are paid a block grant on a pro-rata basis of Rs.200 per student for sharing the resources and rendering student support services, including conduct of personal contact programmes and a contingency amount of Rs.12 per student. The co-ordinator of the Study Centre, as well as the assistant and helper (peon), are paid a small honorarium for their services by NOS. This amount varies according to the number of students enrolled in the Study Centre. The co-ordinator draws the teachers from the same school or from outside to conduct the tutorial classes during personal-contact programmes. The 1,092 NOS Accredited Institutions fall under three categories, namely Accredited Academic Institutions (812), Accredited Vocational Institutions (228) and Special Accredited Institutions for Education of Disadvantaged (52).

The Accredited Institutions play a very important role in the delivery of distance education, and create a public interface for NOS. In other words, the formal schools are the main vehicles for delivery of distance education at the local level. While maintaining its academic autonomy and unique characteristics, NOS has developed an effective partnership with formal education, and most particularly with the school system. This interface of NOS with the formal schools has helped in reaching out to a large clientele across the country.

Delivery approach

NOS imparts education by adopting a mixed approach of combining self-study and Study Centre support, complementing these with electronic

media in a very limited way. The courses are carried out through multimedia learning packages prepared exclusively for the distance education students. The learning package consists of a curriculum outline, printed self-learning instructional materials, personal contact programmes for face-to-face interaction, audio-video cassettes and use of electronic media (television transmission and teleconferences).

Self-study

Self-instructional material forms the primary learning medium of the NOS students. The exclusively designed NOS material, based on the course curriculum, helps the students to learn at their own pace. The design of this material draws heavily on the learning theories of Skinner, Ansubel, Malcolm Knowles, and Benjamin Bloom (Mukhopadhyay, 1996). The main component of the self-study materials includes a concept map, an introduction, a statement of objectives, a presentation of the contents in the various sections, in-text questions for self-check and feedback, a summary, terminal exercises, and a set of assignments. The materials are based on interactive principles and are user-friendly. Considering the varied background of the students, the self-learning materials are written in simple language with illustrations, following a programmed learning method.

The success of the distance education programme depends largely on the quality and the timely receipt of instructional materials by the students. The distribution of materials is made through the Study Centres, which receive the study materials in bulk. The materials are supplied to the Study Centres at their doorsteps in a phased manner through road transport by NOS. However, in some of the far-flung areas, the Study Centres are requested to collect the materials from the nearest warehouse of authorized transporters. Also, in special cases, the study materials are sent directly to the enrolled students. The distribution of study materials is made to the students by the Study Centres in different dispatches or in blocks. Secondary students get six

such blocks and senior secondary students get ten blocks. This varies widely in the case of vocational and life-enrichment courses. The number of booklets for each subject varies from five to eight for secondary, and seven to eight in the case of senior secondary levels. In addition to subject materials, the students are provided with guidebooks for the utilization of the self-learning materials, practical guides and kits for science subjects, and supplementary materials. The students are given the first set of materials along with the course syllabus right at the time of submission of their application, without waiting for finalization of their admission by NOS. NOS also brings out a bimonthly magazine 'Open Leaning' to increase dialogue with the students and Study Centres. It includes wide-ranging topics to motivate and guide the students, and to develop self-learning skills. These topics include model question papers, general knowledge items, the sharing of successful experiences etc.

One of the studies (Gaba, 1995) shows that NOS students largely depend on the self-learning print materials and that a high majority of students (68 per cent) find them very useful, as against one quarter of students who use these materials selectively and consider them useful only to a certain extent. In academic circles the NOS materials are considered to be among the best learning materials in distance education in the country. Some of the formal schools and colleges use NOS instructional materials in imparting remedial teaching to students. However, students find it a problem to obtain the materials in time and sometimes do not receive all the course materials from the Study Centres. The reasons for this relate to the transportation of materials, delays in communicating with the students by Study Centres, and lack of proper management of material distribution at Study Centres.

Personal contact programmes (PCPs)

In distance education, students miss out on some of the advantages of the formal education system, in particular face-to-face teaching, peer group socialization, counselling and guidance by teachers, etc. It was in order to

give distance education students access to some of these benefits of the formal system, that NOS adopted the Study Centre approach in its delivery mechanism. The Study Centres act as a medium of communication between the students and NOS. They help with student admissions, supply of materials, conducting of examinations and in organizing personal contact programmes (PCP). The co-ordinator is responsible for planning and managing the student support system.

The most important function of the Study Centre is conducting the personal contact programmes for students. The aims of the PCPs include peer interaction, collective guiding, providing counselling and guidance, tutorials, clarification of doubts and problem-solving in using self-learning materials, tutoring in specific and difficult concepts/areas, conducting practicals, preparation for examinations, getting assignments corrected and giving feedback, listening and viewing audio-video tapes etc. Thus the Study Centre is expected to play multiple roles and the co-ordinator and tutor must be friend, philosopher and guide. The tutors are not supposed to teach, rather they are expected to help the students in learning the materials themselves.

The co-coordinator of the Study Centre prepares the schedule of contact programmes and informs the students in advance. The personal contact sessions are organized during school holidays and weekends. Even though the Study Centre has to provide 30 personal contact sessions in academic subjects and 35 sessions for science subjects, which include 5 sessions for practicals, it is not compulsory for the student to attend them. A study room has to be provided by the Study Centre for the NOS students to use the supplementary study materials and audio-video tapes. NOS pays on a pro-rata basis Rs.200 per student enrolled during the session, besides Rs.12 per student towards contingencies for organizing PCPs. The tutor is paid Rs.75 per session of one hour.

PCPs assume special importance at the secondary level as most of the students belong to the under-20 age group and have low pre-entry

qualifications. They lack self-learning skills and motivation. In such situations they require more personal help than for distance education students at a higher level. A large body of research on distance education (Anand, 1979; Khan, 1989; Pillai and Mohan, 1983; Sahoo, 1985; Biswal, 1979; Kumar, 1981; Balasubramaniam, 1986) shows that most of the distance learners expressed a positive opinion about the usefulness of the PCPs. Holmberg (1982) states that the face-to-face/PCP sessions often prove to be very useful and successful in supplementing the study materials. It has been advocated that a face-to-face contact programme is a necessary input to overcome the social and academic alienation of learners in the distance education system (Usha Devi, 1994). A few research studies (Gaba, 1995; Sharma, 1997) on PCPs of NOS show that the students found the PCPs very useful although they are largely lecture-oriented rather than being tutorials. The PCPs are of great value but this is seldom realized either by tutors or by students, and both are guided by the pervasive influence of the lecture methods of the formal system.

The methods of conducting PCPs (Madan, 1995; Rathore, 1993; Murali Manohar and Radhakrishna, 1995) can be put into three categories, the first one being only lecturing, the second method being counselling, and the third including both tutoring and counselling. Although this classification was designed for the higher education level, it is more or less the same in the case of distance education at school level. The topics available as self-learning materials are repeated in most of the cases (Balasubramaniam, 1986). A pilot action research study on PCP methodology in one of the NOS Study Centres (Sharma, 1997) shows that combining inbuilt counselling, interactive tutorials and problem-solving sessions, has helped significantly to improve the performance of secondary-level students in science subjects in public examinations as compared to the control group. Another important problem is low student participation in PCPs. The existing evidence shows that optional provision of attendance, the location of Study Centres in urban areas, financial problems, lack of proper facilities for boarding and lodging and lack of prior

information to students act as influential factors (Dutt, 1976; Biswal, 1979; Sahoo, 1985; Balasubramaniam, 1986) for poor attendance at PCPs. These reasons may well reflect the attendance position in the case of distance education at secondary level also. Some of the other problems that affect the quality of personal contact programmes are: the enrolment of a large number of students without having the requisite facilities at the Study Centres, and non-viable numbers of students in terms of subject and course enrolment. NOS students, particularly the science students, face difficulties in obtaining access to laboratory facilities, as the Study Centres fear potential breakage and mishandling of the equipment and chemicals by the NOS students.

In view of the problems related to the organization of PCPs and tutor-marked assignments, NOS has taken certain initiatives, such as organizing regular review meetings with the co-ordinators, conducting orientation programmes for the co-ordinators and tutors on distance education methodologies, supplying handbooks and specific guidelines etc.

Electronic media

The quality of distance education depends on a judicious mix of multi-channel learning. Electronic media play a very important role in imparting learning at a distance, by overcoming problems of time, space and cost. In view of the explosion of communication technologies, NOS has taken the initiative since 1994 to harness the potential of mass media, such as television, on the one hand, and, on the other, to develop curriculum-based video-audio tapes or procure these from different sources. As a result of concerted efforts and dialogue with the Ministry of Information and Broadcasting, a breakthrough in the delivery mechanism of NOS has taken place and NOS programmes are being telecast nationwide on national television once a week for 30 minutes. NOS is also contributing a segment for a 30-minute telecast on the recently launched educational channel 'Gyan Darshan'. Since television transmission was started only recently, it would be difficult to evaluate the extent of utilization of this medium. However, as a large number of students are from Delhi and

the language of transmission is Hindi, perhaps the Delhi-based and Hindi-speaking students find the telecasts more useful and watch them more frequently than students from other regions. For these programmes the Ministry of Information and Broadcasting does not charge NOS, as the programmes are covered in the time slot for educational programmes. But when we consider the opportunity cost of the programme, it is very high, as a sum of Rs.80,000 is charged per 10 seconds for commercial programmes by the government-owned channel Delhi Doordarshan.

Audio-video programmes are one of the important support systems provided by NOS for complementing the self-learning materials and other modes of learning by the students. NOS has produced 25 audio-cassettes in both English and Hindi for language teaching and other subjects. Since NOS has no studio facilities, films are made by outside producers. More than 53 films on different academic and vocational subjects have been developed and some are under production. NOS supplies the audio-video cassettes to all the Study Centres for screening to the students. The students can also borrow them from the Study Centres. The extent of utilization of different media has not as yet been evaluated either by NOS or any other researchers. However, a general observation shows that these media are used in a very limited way.

A study conducted on the preferred mode of learning by students shows that a majority of students (77 per cent) depend exclusively on self-instructional materials and find them useful. Only one-third of students rely on supplementary materials other than self-instructional materials supplied by NOS, these being guides and books. Guides include both text and answers, and are designed specifically to help students prepare for their examinations (Gaba, 1996).

Designing the curriculum

One of the crucial aspects of education is the curriculum and in this respect NOS has a very vital and well-defined system. Given the mission,

broad objectives and target group of NOS, the need to design a separate curriculum was felt. NOS clientele ranges broadly from school drop-outs, working adults, housewives, disadvantaged and urban poor, the rural population, ex-servicemen, etc. The needs and approaches of these groups are different from those of students attending formal school. In view of this, the content of learning ought to be different from the formal system. In realization of this need, NOS has set up a subject expert committee to design a curriculum. A rigorous and systematic approach has been adopted for designing and revising the curriculum. Foremost, for launching any course, a paper on Policy Directions for the curriculum is prepared by the experts and then discussed extensively and finalized on the basis of feedback received from subject experts, students and teachers. Subject committees are constituted with representatives from universities, institutes of higher learning, the National Council For Educational Research and Training (NCERT), the Central Board of Secondary Education, central government schools, Navodya schools ('pace-setting schools') and subject experts from NOS. Each subject committee has a six-member team. When developing the curriculum, the major thrust is on (Dewal, 1986):

- a broad-based curriculum that is linked to the life situations of NOS students, so that learning is long-lasting;
- an interdisciplinary approach to make the curriculum more general, which is the primary goal of education up to the secondary stage;
- a multi-media package for improving the quality of learning;
- a reduction in content load without affecting quality; and
- the development of oral competences in language courses.

Keeping in view the broad framework of the curriculum, the subject committee interviews learners and teachers, reviews the syllabi and curricula of different state boards of education and the Central Board of Secondary Education, and also analyzes the examination answer papers of the NOS students. First of all, the subject committee prepares an outline for the curriculum. The process of specifying content areas and the formulation of

learning outcomes then follows. Preparing the syllabus by specifying the learning outcome is one of the unique aspects of the system. This guides the lesson writers and helps them from straying away from the point or altogether missing the link. The draft curriculum and the expected learning outcomes are discussed at the expert meeting. The draft curriculum is amended according to the suggestions and later finalized. The same strategy is also followed in the curriculum revision exercise. The secondary and senior secondary course curricula were revised in the nineties.

Vocational curriculum

In the case of vocational education, the selection of different vocational courses and the development of the curriculum were slightly different. Relevant areas were defined and an appropriate curriculum was designed. An expert committee developed curricula for these courses through the preparation of guidelines regarding format and content in relation to the skills to be acquired. The same was discussed and finalized by the vocational course committee of NOS. An important consideration was that the course should be relevant and have ready marketability. These courses were made modular in nature with a varying duration of six months to one year.

However, despite the fact that the content list is drawn up by subject committees, the content of the Open School syllabus is not materially different from that of formal schooling. The Open School syllabus remained equivalent (but not the same) to that of the Central Board of Secondary Education (CBSE) and to those of other Boards of Secondary Education in other states. Parity in curriculum is considered essential to ensure that universities do not put restrictions on admitting Open School students and that they are not discriminated against on the job market. Thus, a pragmatic approach was adopted to ensure the credibility and equivalence of the Open School system and also to meet the educational needs of the clientele. The vocational course curriculum is more or less the same as that adopted by the formal vocational course centres.

A close scrutiny of the NOS curriculum for different subjects at secondary and senior secondary levels and the curricula of CBSE, NCERT, and a few other states shows that there is no significant difference in the quality and level of the NOS curriculum. In the case of subjects like mathematics and history, 90 per cent of the NOS curriculum is the same as those of other boards of education. In the case of the language curriculum, NOS puts more emphasis on the use of common-usage language rather than literary language; however, the objectives of the language curriculum remain the same. In some of the subjects, such as economics and commerce, the NOS curriculum includes applied and practical aspects. The content relates to daily-life experiences and the immediate environment. For instance, alongside economic theories, application aspects like how to open a bank account, maintaining accounts, etc. have been included. Some of the courses related to, for example, life enrichment, have different content matter. Overall, the NOS curriculum has at least 70 per cent the same content as the curriculum of other agencies. However, it varies according to the subject. Thus the significant difference between the NOS curriculum and the formal system curriculum is that while the formal system emphasizes global and theoretical aspects, NOS focuses on life-related aspects and more local relevance. A content analysis of NOS and CBSE curriculum for social studies, English and science is given in *Appendix 2*.

The fact that many universities and several state boards of education have given recognition to NOS and admit NOS students into the higher education institutions proves that the NOS curriculum is of an equal standard, if not higher, to that of the formal education system.

Designing of instructional materials

The National Open School has made a positive departure from the instructional materials prepared in the past by different correspondence and distance education institutes, which were not much different from textbooks

(Dewal, 1986). In distance education, the students have to learn by themselves through a self-study method. The most important aspect to be taken into consideration in distance education is that students do not the have the stimulating environment and competitive spirit that are present in the formal system. Therefore, distance education methodology has to incorporate easy and systematic learning procedures. Self-instructional materials are the mainstay of the learning package. Keeping in view the important principles of learning and sustaining motivation, as these are important considerations, the instructional materials are designed as self-learning materials, with course teams that develop the learning materials. The team consists of members from national and regional institutions such as NCERT, the technical teacher training institutes, colleges, universities, and conventional schools, as well as NOS subject tutors and textbook authors/writers. Special attention is paid to including members from the Study Centres as they have first-hand experience of working with the NOS students.

The materials are designed following a systematic sequence of basic steps. The sequence of developing self-learning materials includes: the orientation of team members in the preparation of self-learning materials followed by a meeting to discuss the outline of the modules; the drafting of the modules; the review of modules by the chair of the course team to check the accuracy of the content and instructional design; the preparation of the second draft; the review of the modules and revisions; the finalization of the lessons; the content editing by the subject experts, and the illustration, translation, language editing and preparation of press copies. Each self-learning module consists of about 5,000 words. A booklet comprising five to six related modules is printed in A4 format.

The self-learning materials are developed in two versions, namely English and Hindi. In the case of the secondary course, the materials are developed in six other regional languages, which are implemented as the medium of instruction. Thus the curriculum in all subjects is separately formulated, vetted

and finalized. It is divided into lessons and the developed self-instructional material is distributed in the required number of booklets to students. The uniqueness of the process of development of curriculum and study materials is that the resource persons are drawn from the formal education system, adopting an interdisciplinary approach and maintaining quality both in content and printing.

Infrastructure for printing

NOS has limited in-house printing infrastructure and DTP facilities for the typesetting of publications. However, selected private printers do the printing of instructional materials according to specifications. NOS maintains a panel of reputed printers from which the printers are selected. Cost, quality and time are major considerations for selecting the printers. During 1998-1999, 500 titles and 5.35 million books were printed by 23 printing presses in 90 days. In addition to its own books, NOS has printed and supplied 229 titles for students of State Open Schools in Haryana and Madhya Pradesh. NOS has been successful in improving the cost-effectiveness of the printing of learning materials in the last few years due to the increased number of titles and copies creating an economy of scale.

Chapter VII
Quality aspects

Qualification and experience of tutors

In the NOS system, there are two categories of tutors: subject tutors who work exclusively in NOS, and tutors who conduct PCPs, who work at Study Centres and are teachers in formal schools. The NOS subject tutors are responsible for designing materials, developing assignments, creating question banks, marking student assignments, developing blueprints for question papers, clearing up students' doubts etc. These subject tutors are appointed on the basis of strict criteria of subject specialization including a first-class master's degree in the relevant subject. An analysis of the education and experience profile of the tutors in NOS shows that a majority of them have less than five years of experience. It ranges from less than one year to more than five years. One of the problems is that the tutors often leave their job in NOS for teaching or research posts in colleges and universities. Only three tutors possess a degree in education in addition to a master's degree in the respective subject area, and only one tutor holds a diploma in distance education. However, 50 per cent of the tutors have research degrees such as MPhil and PhD. Except for one tutor, none have teaching experience in schools. However, some of them have taught in colleges. Most of the tutors are from a young age group and are less than 35 years old.

Tutors in Study Centres are normally selected from among the regular teaching staff of the formal school, and in accordance with NOS guidelines. They are qualified teachers in their respective subjects. There is no information available regarding their academic and professional qualifications, nor their teaching experience. Sometimes the co-ordinators of Study Centres also hire tutors from outside the school who may be educated but unemployed, retired

teachers etc. Since the Study Centres comprise schools of different management types (private schools, government-aided schools, central and state government schools, and registered societies), the qualifications, experience, etc. of tutors can vary widely. Not only do the Study Centres vary in their infrastructure and staff strength; they may also vary in the academic training and experience of their tutors.

Guidebooks

NOS has developed different types of manuals, guidebooks, handbooks, practical guides, prototype kits, etc. to help tutors in organizing the counselling and guidance sessions. NOS provides the Study Centres with supplementary materials and reference materials. The tutors are oriented in handling the self-learning materials and dealing with student problems. NOS brings out a bimonthly magazine called 'Open Learning' to enable regular dialogue and interaction with the tutors in the Study Centres, and to provide a forum for the tutors to share their experiences and better understand distance education methodologies and learners' problems.

Tutor/pupil ratio

To maintain the quality of the student support system, the NOS norm allows Accredited Institutions to admit a maximum of 500 and minimum of 50 students. NOS has set norms concerning the number of PCP sessions to be organized and defined sections based on the number of students. The number of PCP sessions prescribed by NOS is given in *Table 23*.

Table 23. Basis for formation of sessions for PCP

Number of students	Foundation	Secondary		Senior secondary	
		Theory subjects	Subjects with practicals	Theory subjects	Subjects with practicals
1-2	1	2	3	2	3
3-7	3	5	6	5	6
8-12	5	10	12	10	12
13-19	8	15	18	15	18
20 and above	10	30	35	30	35

Source: NOS Guidelines for PCPs.

If the number of students for a particular subject is 20 or above, then the number of PCP sessions is either 30, in academic subjects, or 35, in the case of subjects with practicals. If the number of students for a subject is less than 20, then the number of PCPs is reduced to 15 only.

In order to facilitate closer tutor/pupil interaction and to have a feasible class size, the number of sections is decided according to the number of students (*Table 24*).

Table 24. Basis for formation of sections for PCP

Number of students in a subject	Sections
20-89	1
90-149	2
150-209	3
210-269	4
270-329	5
330-389	6
390-449	7
450-500	8

Source: NOS Guidelines for PCPs.

If the number of students ranges between 20 and 89, then there is one section. With an increase in the number of students, the sections also increase, with an average number of 59 students in each section. Despite the fact that norms are prescribed for a feasible tutor/pupil ratio, in reality most of the Study Centres do not follow the norms when establishing the sections, for want of physical facilities and teaching staff. Secondly, student attendance at PCPs also varies widely among the Study Centres. Although the schedule of PCPs is fixed on holidays and weekends, this may not necessarily suit all students. Then again, students find it very difficult to have access to the co-ordinator, tutors and Study Centre support facilities during working days, as the schools are busy with their own routine teaching work.

Tutor-marked assignments (TMA)

NOS introduced the tutor-marked assignment (TMA) system in 1995, replacing the earlier system of computer-marked assessment (CMA). The

TMA aims at continuous monitoring of the progress of learning and at providing feedback to the students. At the end of each lesson (set of self-instructional materials), a set of assignments is given. There is no prescribed frequency for submission of assignments. It is mostly up to the students to send the assignments as and when they complete them. However, a student has to submit at least four assignments in each subject to be eligible to sit for the external examinations. During the PCPs, the students are expected to submit the assignments and receive feedback from the tutors. Despite the importance attached to the TMA, in practice neither the students nor the tutors take them seriously. The students try to complete the mandated number of TMAs only to be eligible to sit for the examinations, rather than to improve quality of learning. Similarly, the tutors find little or no time for correcting and giving feedback to students. As the tutors are from the formal school system, they have no tradition of correcting such assignments and preparing comments for improvement etc.

Chapter VIII
Evaluation and examination results

In 1990, the Government of India authorized NOS to conduct examinations and act as the certifying body. As a result NOS has become the National Board for secondary and senior secondary-level examinations, similar to the Central Board of Secondary Education, and the Council for the Indian School Certificate Examinations. NOS conducted its first examinations during 1991. NOS conducts examinations twice a year, during May and November.

NOS has adopted several innovations in student evaluation. The first innovation in the NOS examination system is that, unlike in the conventional school system, a student is not required to take examinations in all subjects at the same time. The student has the freedom to take examinations in one or more subjects at a time and may take the other subjects at a different time. Secondly, the students can spread the subjects over nine examination sessions during a five-year period and credits are accumulated until the certification criteria are fulfilled. A student can redo examinations even after passing the subject, to upgrade the credit for that course. However, the student is allowed to appear for the first examination only after one year of admission. Another advantage is that a student who qualifies in at least one subject but is not successful in completing the course in the mandatory period of five years, can seek readmission in the same course. The credits of the subjects passed in the previous examinations are transferred to the fresh admission.

One more innovative benefit that NOS offers is a credit transfer from formal schools. Those students who have passed in at least one subject from either the Central Board of Secondary Education or different State Boards of Education and State Open Schools but have not qualified in the course may seek admission in NOS. They may receive credits for a maximum of

two subjects they have passed from other boards of education; however the remaining subjects have to be taken with NOS in order to obtain the final certificate.

The fourth innovation in student evaluation is that NOS uses a variety of tests including objective tests, short-answer tests, and short essays. These are typeset in special blue ink, comprise various levels of understanding, and are weighted according to the topics studied. A systematic approach is adopted in preparing the question papers, along with a marking scheme and model answers by experts selected from a panel of experts. The question papers are finalized after being moderated. Before evaluation of answer sheets the examiners are oriented and trained to assess student responses on the basis of the model answers and marking system, in order to reduce variability in marking among evaluators.

In addition to external examinations, NOS had a system of internal evaluation called computer-marked assessment (CMA) until 1995. The CMA was aimed to screen students for taking external examinations. In other words only those who got 25 per cent marks in CMA were eligible to take examinations. In view of its lack of effect on student learning progress and a large gap between the CMA scoring and actual performance levels in examinations, this system was replaced by TMA. As mentioned earlier, TMA was introduced as a part of learning progress evaluation and to provide feedback. In the initial years, a 20 per cent weighting (Mukhopadhyay, 1994) was given for TMAs. Currently no credits are accorded for TMAs; however, the submission of four TMAs has been made compulsory in order to qualify to take examinations.

Examinations

NOS conducts external examinations through its network of Study Centres spread all over the country, as well as through a few centres situated

overseas, in Dubai, Abu Dhabi, Mascot and Nepal. With the sharp increase in the number of students, there has also been a steady increase in the number of examination centres, from 141 centres in May 1994 to 321 centres in May 1998. The students enrolled in a particular Study Centre have to sit for their examination in another Study Centre. Conducting examinations is a big task that is handled meticulously by NOS twice every year. The question papers are printed centrally, and remain confidential. The parcels of question papers are dispatched to the branches of various Nationalized Banks for their safe custody. On the day of examination the Bank Manager, as per the date sheet of examination, hands over the question papers to the centre superintendent. To ensure the fair conduct of examinations, NOS appoints observers at almost each examination centre. Special teams from headquarters also carry out random checking.

Answer papers along with the attendance sheet are sent to the Answer Book Cell in NOS. The evaluation of answer papers is organized in selected centres spread all over the country. Most of the evaluators are teachers from formal schools who have been trained and oriented in the NOS marking scheme. At each evaluation centre a co-ordinator is appointed by NOS to oversee the overall procedure of the evaluation. NOS draws its resource persons from educational institutions, as well as calling upon retired educational administrators and academics to oversee examinations and evaluation.

After having computerized the marks, NOS declares the results within nine weeks. The mark sheets as well as the migration certificates of the successful candidates, are sent along with the results gazette to the Study Centres. The certificates are sent either to the Study Centres or directly to students later.

Examination results

Examination results and student performance levels are the indicators of the effectiveness of an educational organization. In the case of an open learning system with much flexibility and feasibility, the question is how far the system is effective in terms of students completing the course. The examination results of NOS students have been analyzed against this background of flexibility and openness (*Table 25*).

Table 25. Students enrolled and certified from 1990-1991 to 1998-1999

Level	Enrolled	Certified (per cent)
Secondary	387,715	39.09 (151,571)
Senior secondary	250,425	44.53 (111,517)
Vocational	19,687	62.53 (12,310)
Total	657,827	41.86 (275,398)

Source: NOS annual report 1997-98.
* Figures in parentheses indicate number of students certified.

From among the students enrolled in the last nine years in different courses, nearly 42 per cent secured the final certificates. There is variation in the completion rates among different courses. Out of a total of 0.38 million students entering secondary level in the last nine years, only 0.15 million, constituting 39 per cent, were able to complete the course and obtain the final certification. At the senior secondary stage, 44.5 per cent of a total 0.25 million enrolled students successfully completed the course. In the case of vocational courses, the completion rate is much higher (62.5 per cent). However, the number of students enrolled in the vocational courses is very low compared to secondary courses. *Table 26* shows the NOS examination results in terms of the pass percentage of students in final examinations in the last nine years.

Table 26. Examination results from 1991 to 1999

Exam. Session	Secondary		Senior secondary		Vocational	
	Appeared	Pass %	Appeared	Pass %	Appeared	Pass %
1991	59,829	23.5	25,026	48.0	-	-
1992	38,190	26.3	23,824	35.5	-	-
1993	52,453	26.0	35,294	33.0	2,239	56.5
1994	56,060	30.3	42,263	40.3	2,048	60.0
1995	53,554	18.0	45,027	24.5	1,329	62.0
1996	81,927	28.3	55,835	23.5	1,846	47.0
1997	102,027	27.0	63,766	23.0	3,227	51.0
1998	122,171	23.0	77,157	24.0	5,572	48.0
1999	143,700	29.0	92,567	25.0	7,122	54.0

Source: NOS annual reports.

In the last nine years, the numbers both of students sitting for the public examinations and of those certified have been steadily increasing. However, the percentage of students certified as against the number of students sitting for final examinations ranges between 25 and 30 per cent. Although examinations are conducted twice a year, a large percentage of students take the examination conducted in May. Most of the students who take the second examination in November are those who failed in the previous examination. There is a sharp difference in the pass percentage of students in the two examinations conducted during the year. In all the examinations, the pass percentage of students is better in May.

The extent of successful completion and subsequent obtainment of certificates is better in vocational education than in secondary and senior secondary examinations. Ever since vocational education was introduced and examinations began to be held, the results have been good. The percentage of students qualifying in vocational courses varies from 47 to 62 per cent, which is much higher than the pass percentage at secondary level. Out of a total of 23,383 students from different vocational courses who took examinations from 1993 onward, 52 per cent were successful in obtaining their certificate.

Examination results with regional languages as medium of instruction

The use of regional languages as a medium of instruction in NOS is a recent phenomenon. The result shows that only 14.02 per cent of the total number of students who sat for the final examination in regional languages qualified. The normal belief is that instruction through regional languages will bring wider participation and better results. However, this could not be proved with such a result. The number of students opting for regional languages who took the examination was very low in relation to the total number of students and it is therefore difficult to make any conclusive generalization.

Performance in different subjects

The performance of students in different subjects varies significantly (*Table 27*).

Table 27. Results per subject in secondary courses (1997-1998)

Secondary				Senior secondary			
Subject	Students appeared	Certified	Pass percentage	Subject	Students appeared	Certified	Pass percentage
Hindi	47,989	35,128	73.20	Hindi	28,643	18,488	64.55
English	57,317	32,556	56.80	English	35,792	21,171	59.15
Mathematics	37,479	14,251	38.02	Mathematics	7,083	2,175	30.71
Science	44,663	26,522	59.38	Physics	7,668	2,608	34.01
Social science	56,742	31,473	55.47	Chemistry	7,266	2,906	39.99
Economics	30,678	17,619	57.43	Biology	4,528	2,291	50.60
Commerce	13,656	6,611	48.41	History	24,182	12,398	51.27
Home science	21,751	16,464	75.69	Geography	12,431	7,767	62.48
Typing Hindi	777	527	67.82	Political science	23,182	14,689	63.36
Typing English	8,700	5,848	67.22	Economics	19,273	10,287	53.38
Word processing (Eng.)	770	700	90.91	Commerce	7,096	3,892	54.85
Bengali	2,834	1,737	61.29	Accountancy	5,530	2,143	38.75
Marathi	113	89	78.76	Home science	8,351	5,740	68.73
Gujarati	60	43	71.67	Typing (Hindi)	554	465	83.94
Kannada	102	88	86.27	Typing (Eng.)	4,783	3,573	74.70
Telugu	56	44	78.57	Stenography (Hindi)	105	70	66.67
Urdu	191	173	90.58	Stenography (Eng.)	273	154	56.41
Typing (Bengali)	51	44	86.27	Secretarial practice	1,911	1,133	59.29
-	-	-	-	Word processing (Eng.)	1,130	1,045	92.48

Source: NOS annual report 1997-1998.

Of all the subjects, mathematics has a particularly low pass percentage, i.e. 40 per cent, and home science has the highest with 80 per cent. The vocational subjects, such as word processing and typing, have much better results than the various academic subjects. The results in languages and social science give an encouraging picture.

In every year, around 25 per cent of students who take examinations are certified. This may seem small but there are large numbers of students qualifying in one or more subjects, and since they accumulate the credits, it cannot be treated as failure. The worrying factor is that in ultimate terms, the final result is not overwhelming and it is difficult to know how much time students have spent in the system. Most of the students who receive certificates were able to complete the course over two years. Despite the flexibility offered by NOS, most of the students opt to take either all subjects or more than three or four subjects at a time. This leads to a high rate of failures. The students who join NOS from the formal system normally complete the course in one or two sittings as they carry credits from the formal system in two subjects and they have had exposure to formal schooling. The students in this group, being young and motivated to continue education, make an effort to complete the courses. On the other hand, a large number of NOS clientele, who belong to the category of drop-outs, rural and working people, the disadvantaged, and women, fail to complete the course for different reasons. Firstly, they have low academic standards; secondly they do not really understand the open learning system and its flexibility. Rather they blindly follow the formal system in choosing to appear in examinations for all the subjects at a time in the first year, this resulting in a high failure rate. The PCPs are expected to provide counselling and guidance to the students in planning their studies; but the tutors in the Study Centres provide little guidance to the students. The tutors, who are formal schoolteachers, also lack a proper understanding of the open learning system and the importance of flexibility. More importantly, private tuition and other vested interests play an important role in encouraging students to appear for examinations in all subjects at a time. Because of their socio-economic status, age and occupational backgrounds, completing the course is not a priority for many of the students.

Although only 35 per cent of secondary students complete the course, it is difficult to consider the remainder as drop-outs in view of the flexibility of the five-year period allowed to complete the course. In the absence of

systematic data available on a cohort of students, it is not clear how many students have dropped out. However, an estimate (Gaba, 1995) shows that only 38 per cent of students complete the secondary and senior secondary courses and the remaining students drop out without getting the final certificate. It is difficult to calculate the drop-out rate in NOS in the absence of reliable studies and given the flexibility of the system. Lack of materials and adequate student support services at the Study Centre level, failure of the delivery mechanism, lack of motivation, and failure in the examinations account for some of the basic reasons for dropping out.

Comparison of examination results with the formal school system

The formal and distance education systems at school level show significant differences in view of their clientele, delivery mechanisms, methods of instruction and evaluation. However, both systems administer examinations at the end of the year to certify the students.

An attempt has been made to compare the examination results of NOS with the results of the Central Board of Secondary Education (CBSE) for the year 1998-1999. CBSE is a national-level examining body. The schools, which are affiliated to CBSE, follow the common curriculum prescribed by the CBSE. The schools under the CBSE are spread all over the country and they are managed by state and central governments, private organizations, private aided set-ups etc. The following *Table 28* presents the pass percentage of students at secondary level.

Table 28. Examination results at secondary level for formal and open schools (1999)

Type of school	Total students appeared	Pass percentage
Central Board of Secondary Education (CBSE, all schools)	394,993	66.92
Government schools	107,848	33.22
Government-aided (private) schools	16,867	54.24
Delhi Patrachar Vidyalaya (correspondence school)	9,434	14.36
Kendriya Vidyalayas	52,673	77.94
Navodya schools	15,682	86.20
NOS	143,700	29.00

Source: Data collected from the Central Board of Secondary Education.

The overall pass percentage of all the schools under CBSE is around 67 as against 29 per cent for NOS. However, the pass percentages of schools with different management types vary significantly even under the CBSE. When we compare the NOS results with those of government schools under CBSE, NOS has not fared dismally as there is no significant difference in pass percentage. But if compared to another form of distance education, i.e. Delhi Patrachar Vidyalaya (School of Correspondence Education), the difference is overwhelming, because compared to Patrachar Vidyalaya's mere 14.36 per cent pass result, NOS has a much higher result. Comparing the results of NOS with schools of high quality and pace-setting institutions, like Jawahar Navodya Vidyalayas and Kendriya Vidyalayas, which have a very high pass percentage, may not be reasonable as the profile of the students and the instructional processes of the two systems are very different.

In view of the variation in characteristics of formal and NOS systems of education, it would be very difficult to compare one with the other in terms of examination results. The examination results vary sharply even among the formal schools under different management types and across locations. Empirical research on school effectiveness all over the world shows that the performance of students depends on how schools are managed. But in the case of the open learning system, it depends on various factors, such as the quality of materials and the student support system, the motivation of students etc.

Chapter IX
Financing

The Finance Committee is a particularly important body within NOS. The Chairman of NOS is the Chairman of the Finance Committee. Other members include all the Heads of Departments of NOS and nominees of the Department of Education, and the Integrated Finance Division of the Department of Education, Ministry of Human Resource Development. The Secretary of NOS acts as member secretary of the Finance Committee. The Finance Committee scrutinizes the budget estimates and accounts and makes recommendations on proposals for expenditure and other financial matters.

The Accounts Branch is one of the most important administrative units within NOS. Its main functions include:

1. Preparation of both plan and non-plan budget estimates/revised budget estimates for the year and obtaining approval from the Finance Committee. This includes the performance budget.
2. Receipt of income from various sources by way of admission fees, examination fees, government grants, and sales of priced publications etc.
3. Payment of all claims submitted by the various departments in NOS, including Regional Centres.
4 Maintenance of accounts, including monitoring of flow of income and expenditure.
5. Preparation of personal claims of staff.
6. Effective supervision of cash balance management.
7. Internal auditing.
8. Preparation of annual accounts for NOS and getting audited by a chartered accountant. Although NOS has autonomy, its accounts must be audited by a statutory auditor and approved by various authorities before being sent to the Government of India to be approved by Parliament.

Funding pattern

In India, most funding for school education comes from state governments and is supplemented by the central government. Any educational institution established by central or state governments is fully funded by the Exchequer. For instance, it is the central government that establishes Kendriya Vidyalayas (central schools) and Novodaya Vidyalayas (pace-setting schools) and finances the total expenditure of these schools. The same is the case for schools established by the state governments. In the case of private aided schools, the government provides 90 per cent of recurring expenditure as grant-in-aid. Thus the government's contribution constitutes a major portion of the revenue in conventional education. However, this is not the case in distance education.

The government budget allocation to NOS constitutes a very insignificant proportion of the total educational budget of the central government (*Table 29*).

Table 29. Budget allocations (1997-1998) by central government

Budget allocation (rupees in millions)				
Total budget	Secondary education	NOS budget	Percentage of NOS budget	
			% of total	% of secondary
50,238	6,842.9 (13.49)	52.1	0.10	0.59
Non-plan budget				
11,375	3,295.90	2.1	0.02	0.06

Source: Analysis of budget expenditure on education (1994-1995 to 1997-1998), Department of Education, Ministry of Human Resource Development, 1999.

Of the central government's total educational budget, only 0.10 per cent was allocated to NOS (1997-98). The budget allocation for NOS forms only 0.6 per cent of the total budget for secondary education. Further, the government's share of funding towards recurring expenditure (non-plan) is

very insignificant as it accounts for only 0.02 per cent of the total educational budget and 0.06 per cent of the secondary education budget. The government's funding pattern for NOS in the last ten years shows that the non-plan allocation has steeply declined to less than one quarter and reached its bottom level. Although the plan allocation has increased in absolute terms, it has not increased in proportion to either the total educational budget or the secondary education budget.

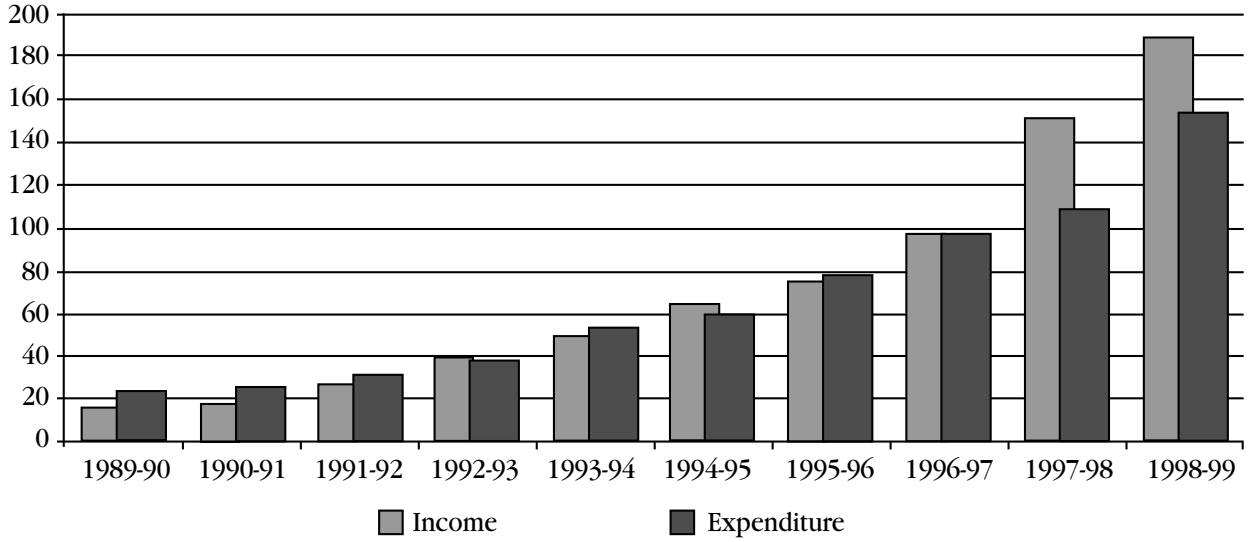
With regard to financial management, it is expected that there should be a proper balance between income and expenditure. In this respect an attempt has been made to examine the income and expenditure pattern of NOS for a period of 10 years (*Table 30, Figure 8*).

Table 30. NOS budgeted expenditure (non-plan) from 1989-1990 onward (rupees in millions)

Years	Income	Expenditure	Deficit/Surplus (%)
1989-1990	15.66	23.13	-47.70
1990-1991	17.23	25.54	-48.23
1991-1992	26.68	31.56	-18.29
1992-1993	38.98	38.03	2.44
1993-1994	49.44	53.28	-7.77
1994-1995	64.19	60.11	6.36
1995-1996	75.10	77.83	-3.64
1996-1997	97.55	97.69	-0.14
1997-1998	151.36	109.54	27.63
1998-1999*	189.18	154.25	18.46

Source: A.K. Gaba (1999a); NOS annual report 1997-98.
* Accounts Branch of NOS.

Figure 8. Budgeted expenditure (in millions)



The total income recorded an impressive rate of growth during the period under study. It increased from Rs.15.66 million in 1989-1990 to 189.18 million in 1998-1999 at a percentage growth rate of 1,008 per cent. The income and expenditure pattern shows that NOS had a deficit budget in the initial years of expansion, which is typical in the case of any distance education programme, where the initial costs are higher due to low enrolment and higher operational costs. At the same time as income has grown considerably, the budget deficit has declined significantly since 1992-1993. Along with the increase in income, the percentage of expenditure has declined, leading to surplus income. Income between 1995-1996 and 1996-1997 increased by 55 per cent and the surplus increased to 27 per cent. Since income and expenditure are examined at current prices, the inflation and rise in salaries due to pay revisions (1997), as well as increased expenditure on quality improvement initiatives such as increased personal-contact programmes, and the increase in number of Study Centres, need to be taken into account. Similarly, the increase in enrolment and in the number of students sitting for examinations, as well as the increases in fees, have contributed to a higher income.

Source of income

The classification of NOS income was carried out taking into consideration the annual budget for the last nine years (*Table 31*). The income has been categorized under four headings: (1) government contribution; (2) tuition fees; (3) examination and other fees; and (4) miscellaneous, which includes sales of priced publications, prospectus etc.

Table 31. NOS source of income (non-plan) from 1989-1990 onward

Year	Government (%)	Tuition fees (%)	Examination and other fees (%)	Miscellaneous (%)	*Total (Rs. in millions)*
1990-91	34.00	43.10	20.10	02.80	17.23
1991-92	13.30	46.00	38.40	02.30	26.68
1992-93	12.30	58.90	26.80	02.00	38.98
1993-94	06.40	67.50	18.80	07.30	49.44
1994-95	10.12	50.49	30.34	09.05	64.19
1995-96	02.08	56.63	32.61	08.68	75.10
1996-97	01.74	51.14	35.35	11.77	97.55
1997-98*	1.30	57.01	31.87	9.82	151.36
1998-99*	0.79	50.25	39.73	9.23	189.18

Source: A.K. Gaba (1999a) and NOS annual report 1997-98.
* Accounts branch of NOS.

Unlike for conventional schools, the government's contribution towards NOS' non-plan budget is very insignificant. The income of NOS is largely accrued from private sources, mainly from the students in the form of tuition fees and examination fees and partly from selling the priced publications and prospectus. During 1998-99, out of a total recurring budget (Rs.154.25 million)

for NOS, the government's contribution constituted only 0.79 per cent. In other words, self-generated resources support more than 99 per cent of non-plan expenditure of NOS.

Conventional schools are highly subsidized, to the tune of 85-100 per cent; this is the case for the Kendriya Vidyalayas and Navodya Vidyalayas that are funded by the central government. State government schools are given 95 to 97 per cent grants from their respective state governments. NOS is almost self-financed, as government support is negligible. The percentage share of government financing declined from 34 per cent in 1990-1991 to 0.70 per cent in 1998-1999. Tuition fees, representing the largest part of total income, have ranged between 43 and 67 per cent of total income in the last eight years. Examination fees constitute the second most important source of income for NOS, amounting to about 40 per cent. Sales of priced publications, prospectus, etc. generate more than 9 per cent of total income. The percentage of income from examination fees and sales of priced publications has grown in the last four years.

Thus, a study of the funds and resources of NOS from 1990-1991 to 1998-1999 shows a decline in the government share in its overall financing. This decline has been both percentage-wise and in absolute terms: it has gone down from 34 per cent of a total of Rs.17.23 million in 1990-1991 to a mere 0.79 per cent of 189.18 million in 1998-1999. It is important, however, to note a few points regarding this decline.

First and foremost, it is not as part of any policy that the government has reduced its contribution to the non-recurring budget allocations of NOS. NOS became a self-financing body over the specified period, with over 99 per cent of its income coming from sources other than the government. There has been a phenomenal increase in the number of students enrolled in NOS over the years, and this in turn has led to a tremendous jump in its income from enrolment fees, examination fees and other incidental sources of revenue.

It is this growth that enabled the budget of NOS to go up from Rs.17.23 to Rs.189.18 million during this period. It no longer demands larger allocations or grants from the government, but instead generates its own resources. This way, NOS maintains its functional and financial autonomy.

In contrast, the government's role in financing formal education is very great, and the institutional income of formal schools is insignificant. This low income can be attributed to the heavy subsidies offered and the expenses incurred as a result of these. While income through fees paid by the students is low, it is further reduced by the policy of state governments with regard to disadvantaged groups. Scheduled Castes and Scheduled Tribes are totally exempt from paying fees of any kind, whether enrolment or examination. They are also offered incentives such as free textbooks, scholarships, midday meals, hostel accommodation etc. Even higher education is free for the Scheduled Castes and Tribes. The government meets the recurring and the non-recurring expenditure of the institutions in such cases.

When one considers that the target groups of NOS are the lower socio-economic and disadvantaged sections of society such as girls/women, urban poor, rural poor, Scheduled Castes and Tribes etc., one is conscious of a paradox in the present situation. NOS generates its own funds through the various fees paid by the students, and even though it offers concessions to target groups, these are restricted to 20-30 per cent. This means that while this system is apparently cheaper than formal education, it proves to be more expensive for the target groups because the latter offers a 100 per cent subsidy to the very same people. The NOS student profile also shows that a large percentage of the students are from among lower age groups or unemployed groups, from which we can infer that their income is as restricted, or even more so, as that of students in the formal system.

In view of the above factors, one cannot help but realize that the self-financing spirit of NOS has very serious implications. While one applauds the

independent spirit of the Open School that generates its own resources, one realizes that the effectiveness of the system in disseminating education among the specified target groups may be limited as long as the concessions are not comparable with the formal system. Access to a larger capital through government funding will provide NOS with the resources that will enable it to give 100 per cent subsidies to underprivileged and disadvantaged groups, and give them a truly alternative system of education instead of a more expensive one that may be beyond their means.

Cost by function and objects

Expenditure by function and objects was analyzed over a three-year period at different points of time. The total annual expenditure was classified as recurring or non-recurring. The recurring expenditure included salaries of academic and non-academic staff, rent, printing and paper costs, student support services, examinations, etc., whereas the non-recurring costs comprised acquisition of equipment and computers, updating of learning materials, purchase of vehicles, etc. Expenditure by function and objects for the years 1989-1990, 1996-1997 and 1998-1999, was analyzed (*Table 32*).

Table 32. NOS expenditure (non-plan) per item

Item	1989-1990	1996-1997	1998-1999
Recurring	Expenditure in rupees(in millions)		
Salary and staff allowances	3.37 (14.59)	10.90 (11.17)	20.20 (13.09)
Stationery	0.22 (0.94)	0.82 (0.84)	1.75 (1.14)
Rent of buildings	1.53 (6.60)	6.74 (6.90)	10.29 (6.66)
Postage	0.90 (3.90)	0.91 (0.93)	2.70 (1.73)
Student support service	0.73 (3.16)	13.81 (14.14)	203.86(18.61)*
Printing of learning material and other	9.71 (41.98)	43.31 (44.33)	41.6 (27.01)
Examinations	5.32 (23.02)	15.21 (15.57)	29.23 (18.94)
Miscellaneous	0.64 (2.78)	2.65 (2.71)	n/a
Non-recurring			
Computer	0.13 (0.54)	0.44 (0.45)	3.42 (2.21)
Updating learning material	0.20 (0.85)	0.29 (0.30)	3.71 (2.40)
Library	0.01 (0.06)	0.03 (0.03)	0.78 (0.51)
Transportation	n/a	2.57 (2.63)	3.01 (1.95)
Total	23.13	97.69	154.35

Source: Gaba, A.K. 1999a and data collected from NOS.

* Expenditure for the year of 1997-98.

N.B. Total expenditure was not calculated due to non-availability of expenditure data for all items.

The analysis of the expenditure pattern shows that expenditure is spread over different functions and objects, unlike conventional schools where personnel expenses dominate the recurrent cost. The proportion of expenditure on different aspects varied for the different years under study. In all the three years, the highest percentage of expenditure was incurred for the printing of materials. While the expenditure on printing rose from 42 to 45 per cent

between 1989-1990 and 1996-1997, it declined steeply to 27 per cent of total expenditure during 1998-1999. The earlier trend of increase in the percentage of expenditure on printing can be related to the number of subjects and number of titles printed, as well as the printing of priced publications aimed at the students, such as the prospectus and syllabus of the courses. The decline in percentage of expenditure on printing during 1998-1999 may be because the number of titles printed did not increase much; secondly, the total recurring budget increased by 59 per cent from 1996-1997 to 1998-1999.

The next major heads of expenditure are examinations and student support services, including the personal-contact programmes and the organization of Study Centres. There was an increase between 1996 and 1998 in the percentage of expenditure on both examinations and student services. This increase corresponds to the increase in the number of Study Centres and in the number of students sitting for examinations, which have a direct bearing on the expenditure. The increase in percentage of expenditure on student services from 3 per cent in 1989 to 14 per cent in 1996 also reflects some qualitative inputs such as an increase in the number of contact sessions – from 20 to 30 –, the introduction of a tutor-marked assessment system etc.

Another important component of expenditure is salary and staff allowances. The percentage of expenditure on staff salaries in 1998-1999 was about 13 per cent, a slight increase from the year 1996-1997. This increase is not due to any increase in staff numbers, rather it is due to the revision of pay scales and increased experience of staff. However, the fall in staff expenditure during the period 1989-1996 was mainly due to appointments on an ad hoc and deputation basis (Gaba, 1999).

Per capita expenditure

Investment in education takes place in two domains, the institutional or social, and the individual or household domain (Majumdar, 1983). In general,

cost estimates in education are based on public expenditure on education. Public expenditure on education consists of recurring and capital expenditure. Costs related to salaries, printing of materials, personal contact programmes, student services, examinations, postage, rent, stationery etc. belong to recurring expenditure in the case of distance education. Capital costs include expenditure on capital items, such as buildings, equipment, furniture, books etc. However, only recurring expenditure is taken into consideration when estimating the unit cost or average cost of education.

The other source of educational expenditure is private or household expenditure. In the case of distance education, household expenditure comprises direct expenditure, such as tuition fees and examination fees paid to NOS. Expenditure on transport, boarding/lodging for attending personal-contact programmes, purchase of additional reading materials and books, private tuition, etc. is a necessary input to facilitate education. In the present context, we have examined only institutional cost. Institutional cost includes fixed cost and variable cost. The fixed costs of the system are independent of the number of students enrolled and include the appointment of both academic staff to handle the courses and non-academic staff to provide support services, fixed costs of central administration and costs incurred in preparation of learning materials. Variable costs are those that are dependent on the number of students enrolled, such as personal-contact programmes, number of Study Centres, printing of materials, etc. The cost function in NOS can be:

C	=	FC+VC*N
Where C	=	Total cost
FC	=	Fixed cost
VC	=	Variable cost per unit of output
N	=	Number of students

An attempt has been made to analyze the recurring and non-recurring unit cost per student over three years at different points, by calculating the average cost per student per year from the total cost function. The costs in

distance education are dependent on a variety of factors: enrolment, type of course, size of academic and non-academic staff, quality of student services, duration and frequency of personal contact programmes, media programmes, cost of printing, postage, etc.

Table 33. Unit cost per student

Year	Enrolment	Expenditure (Rs. in millions)		Unit cost (in rupees)		
		Recurring	Non-recurring	RUC*	NRUC	TUC
1989-90	49,055	22.79	3.36	464	7	471
1996-97	90,261	94.36	3.34	1,041	37	1,078
1998-99	132,222	143.43	10.92	1,085	82	1,167

Source: NOS annual reports and NOS accounts branch.
RUC: Recurring Unit Cost; NRUC: Non-recurring Unit Cost; TUC: Total per Unit Cost.

The per-student unit cost in distance education was Rs.1,085 in the year 1998-1999 (*Table 33*). The per-student unit cost increased two and a half times between 1989-1990 and 1998-1999. This increase in cost is due to the size of enrolment and the expenditure pattern in NOS. Since the expenditure data are at current prices, the consequences of inflation need to be taken into account. However, the increase also reflects some of the initiatives taken to improve the quality of print materials, to increase the number of Study Centres, to increase personal contact sessions by 50 per cent in all subjects, and the enhancement in the payment to Study Centres for PCPs.

When calculating the per capita capital cost, the depreciation value for the equipment, buildings etc. should be taken into account. However, we have not done this exercise. We have made a simple average cost calculation, taking total non-recurring expenditure and the number of students in a particular year. Per-student non-recurring expenditure increased significantly from 1989-1990 to 1998-1999, from the small amount of Rs.6 to Rs.82. The major part

of non-recurring expenditure covers the expansion and modernization of the computer system, media support, vehicles and acquisition of land for permanent campuses etc. Normally, the average capital cost declines with increased enrolment. Capital expenditure on printing equipment, buildings, media facilities etc. was not incurred by NOS as it largely depended on outside agencies for printing, was housed in rented premises, and media programmes were commissioned to outside agencies. In recent years, non-recurring expenditure has increased for computers, media and acquisition of land assets. This is why the per capita cost has shown an upward trend in recent times.

The various components of the unit cost of distance education include the staff cost, stationery, rent of the buildings, learning materials, number of PCPs, examinations, postage etc. The following *Table 34* shows the per-unit cost of different components.

Table 34. NOS recurring student unit cost (in rupees) per item

Item	1998-1999
Staff costs	153
Stationery	13
Building costs (rent)	78
Postage	20
Student support service (payment to AIs of PCPs and others)	154
Printing costs	315*
Examination costs	221
Miscellaneous costs	n/a
Total recurring student unit costs	1,085

Source: Annual reports of NOS and accounts branch of NOS.
* This expenditure is for the year 1997-1998.

Of the average expenditure on a student, nearly one-third goes towards printing costs, which is direct input for student learning, followed by examinations. Interestingly, the per-unit cost for student services and staff salaries is at the same level although the quality of student services requires more attention in distance education.

Per capita cost of a successful student

The expenditure analysis provides only a general picture of costs. However, it does not imply unit output cost. The common assumption that distance education is far less costly than formal education may be true at supply level. But the important question would be how effective the distance education system is in terms of output. Therefore, it is imperative to examine the per capita cost of a successful student.

Table 35. Effective cost per capita for successful NOS students

Year	Total expenditure (Rs.)	Total certified (in Rs.)	Effective unit cost*	Total unit cost (in Rs.)**
1990-91	17,862,000	8,780	2,034	599
1991-92	31,564,000	17,250	1,829	871
1992-93	38,034,000	18,480	2,058	710
1993-94	53,279,000	25,213	2,113	855
1994-95	60,119,000	34,026	1,767	902
1995-96	77,833,000	20,649	3,769	1,031
1996-97	97,496,000	36,381	2,680	1,078
1997-98	109,544,000	37,494	2,922	1,029
1998-99	154,350,000	46,189	3,342	1,167

Source: Gaba, 1999a, NOS annual reports and data collected from NOS.

* Effective cost = Per capita cost of successful student.

* * Total unit cost includes recurring and non-recurring expenditure.

The per capita cost depends on the number of students getting final certification as well as on the total expenditure incurred. The per capita cost of a successful student varies between 1990 and 1998-99 from Rs.1,767 as the lowest to Rs.3,769 as the highest (*Table 35*). The per capita cost of a successful student has increased over the years. This is mainly because the rate of growth of successful students has not increased in proportion to the rate of growth of enrolment and expenditure. In other words, while the number of students joining NOS has greatly increased, the proportion of students successfully completing their education has not increased. In the last three years, the per capita cost of a successful student has increased. When we compare the per capita cost of successful students to the per student unit cost, it shows that a successful student carries the burden of the unit cost of three to four students. For instance, during 1990-1991, while the per-student unit cost was only Rs.559, the per capita cost of a successful student was Rs.2,010, which is more than 300 per cent. The high per capita cost of the successful student negates the benefit of the lower unit cost of distance education. In other words, the high rate of wastage leads to a higher per capita cost for the successful student. However, in view of the flexible system adopted by NOS, many students may not have completed the course but might have completed some subjects and accumulated the credits. It is also important to remember that the students in NOS can continue for five years. Therefore, we cannot consider those who have not completed the course as drop-outs. As such, it would not be rational to work out the per capita cost for successful candidates. Although apparently it seems that the unit cost of a successful student is much higher than the per-student unit cost, in reality this is not the case as a large number of students might have passed in a number of subjects and accumulated the credits.

Cost comparison with the formal system

In the formal system, the average per-student recurring expenditure at secondary level is Rs.951, but varies widely from state to state (Government

of India, 1992a). The unit cost per student varies widely at the inter-school level and depending on the management type. The cost components in the formal system are substantially different from those of the distance education system. In formal education, the teaching cost covers the largest proportion of total expenditure, as high as 91 per cent at secondary level. Of course, the students in the formal system have the immense benefit of face-to-face teaching and interaction on a daily basis, which the distance education students lack. Similarly, in the case of the formal system the government subsidizes a large portion of educational expenditure, whereas in the case of distance education the students meet nearly all of the recurring expenditure. Therefore, when we compare the per-student cost in the two different systems we should keep in mind the different characteristics of the two systems.

In India, there are very few research studies on the cost analysis of education in general and secondary education in particular. Although there are a few studies on cost comparison of distance education with the conventional system at the higher education level, there are no such studies at secondary level. However, one study conducted on the cost of education in secondary schools in Delhi provides per-student unit cost (recurring) for different management types. An attempt will be made here to compare the unit cost of education in NOS with that of the formal schools in Delhi. Since the study on formal schools presents data for 1990-1991, we have used the same year for per-student unit cost in NOS for comparison (*Table 36*).

Table 36. Unit cost of NOS and formal schools

Type of system	Number of students	Per-student institutional cost (in Rs.)
Kendriya Vidyalaya	30,990	904
State government-run schools	17,741	1,019
Aided schools	33,812	969
Unaided schools	74,115	747
National Open School	40,884	599

Source: Aggarwal, 1991, 'School Education', Arya Book Depot, New Delhi.

When compared to schools of all other management types, NOS presents considerable cost savings over the conventional schools. The cost difference varies among different schools. The cost of both NOS and unaided schools is very low compared with the cost of schools run by the Delhi Government. When compared with the Kendriya Vidyalayas, which are totally funded by the central government, the per-student cost in NOS is one-third less. One very interesting thing to note is that the per-student cost in NOS is nearly half of that in government schools with the same level of examination results.

Chapter X
Perceptions and opinions of students

Although the distance education system has been in existence at secondary level for over 20 years, there are few studies exclusively covering aspects such as the students' perception of the system, parental opinion, employees' responses, the extent of students going on to higher education etc. However, a study conducted on graduate feedback covering successful NOS students (Gaba, 1995) shows that a large majority of students (81 per cent) joined the distance education stream to continue education and to go on to higher learning institutions. This evidently proves that a majority of students joining NOS are those who have either failed or dropped out of formal schools. Therefore, to qualify to join the higher education stream, NOS has helped them. Another important reason for choosing the distance education system was that they wanted to improve their educational level to qualify for jobs. As has already been mentioned, the minimum qualification for a lower-division clerical post is the secondary-level certificate, and some of those who are already in employment at lower levels aspire to qualify for promotion and hence join NOS. In the case of disadvantaged groups such as Scheduled Castes and Scheduled Tribes, since there are jobs reserved for them, NOS helps them in improving their qualifications to obtain these reserved posts. Similarly, those who are already working as daily wage-earners, or who are in ad hoc positions, are motivated to join distance education in order to improve their qualifications to get regular jobs. On the other hand, some, but not many, people join NOS just to acquire certificates. Interestingly, the students do not give reasons such as low cost, flexibility, or opportunity cost for their joining NOS.

With regard to student satisfaction vis-à-vis their objectives in joining NOS, a large majority (Gaba, 1995; Dewal, 1983) of students were able to achieve the objective for which they joined NOS. From this it is clear that distance education, to a large extent, has helped many to continue education, to secure jobs and to better their employment opportunities. In other words,

there seems to be no discrimination against distance education students either in admittance to higher education institutions or in securing jobs. However, we do not have exact data on the nature of the jobs they have secured or the type of higher education institutions that these students were able to join.

Most of the students who joined NOS came to know about it through friends, other students and schoolteachers. The majority of the students perceive the self-learning materials provided by NOS as useful. However, one-third of students are of the opinion that the guidebooks that are sold on the open market, help them from the examination point of view, as they are easier to follow. Students' opinions with regard to delivery methodology show a mixed response (Gaba, 1995). A large percentage of students like the lecture method for tutorials during personal-contact programmes. More importantly, students feel that the Study Centres do not treat them as their own students, rather, certain of them (the private schools) exploit the students by way of private tuition and charging extra money for services and admission. Similarly, students are categorical in criticizing the erratic functioning of Study Centres and lack of access to facilities. Particularly the science students find it difficult to conduct practicals, as the Study Centres do not co-operate.

The students face difficulties in travelling long distances to attend PCPs, as there are no boarding or lodging facilities arranged by the Study Centres. This is more of a problem in the case of girls and students from far-flung areas (Mullick, 1986; Gaba, 1995). This may be one of the reasons why a large number of students have taken paid tuition and coaching. Interestingly, some of the students paid extra to Study Centres to have coaching in addition to PCPs. Gaba (1995) exposes some of the weaknesses of the Study Centre system, and highlights the fact that many Study Centres exist only on paper and act as mediators between NOS and students only in providing admissions. Cases of malpractice in examinations have been mentioned by about one-quarter of students. It is surprising that in some Study Centres, the students have to pay more money towards fees and prospectuses than the amount

prescribed by NOS. Similarly, some of the students paid the Study Centres for PCPs, even though students are not supposed to pay anything (Gaba, 1995). A common problem found was that students do not receive learning materials in time from the Study Centres, and also not all the course materials.

According to Gaba (1995), the large majority of students feel that the current fees are reasonable. In fact many students were willing to pay more for the course materials.

Chapter XI
Conclusions

India has had impressive success in improving its education system, particularly in expanding facilities and increasing participation. The incredible expansion in the number of institutions at different levels has led to a phenomenal increase in access and student numbers. Despite this expansion, still millions of school-age children are either outside the education system or have dropped out early, resulting in a low transition rate from the primary to the secondary stage. As a result, not even 30 per cent of potential students from the relevant age group participate at the secondary level.

India is one of the few countries that adopted the distance education system both at higher and secondary education levels more than four decades back. Distance education at tertiary level was introduced in the form of correspondence education to meet the ever-increasing pressure on higher education. At secondary level, distance education in the form of correspondence education was introduced in order to improve the performance of private students who sat for examinations. Distance education at secondary level has undergone significant changes since its beginnings, in its objectives, characteristics and delivery mechanism. The Open School Project was established during 1979 by CBSE in order to provide educational opportunities for those who could not join the formal system: working adults, women and disadvantaged groups. Although the Open School Project was located within the formal education structure, it maintained the distinct features of an open learning system in terms of open entry, separate curriculum, and a flexible scheme of studies and examination system. The functional and academic autonomy enjoyed by the Open School Project helped in the systematic planning and careful launching of many open schools, accruing wide acceptance and credibility both among the clientele and from the standpoint of the formal

system of education. The success of the Open School Project and the incorporation of the National Policy on Education (1986) culminated in the establishment of the National Open School (NOS), with increased scope and diversified objectives. The Open School Project was later amalgamated with NOS and that helped in many ways. Firstly, NOS inherited a successful and well-established open learning system along with its experienced staff. Secondly, the Open School Project had already obtained credibility for its quality and equivalence with the formal certification of CBSE. NOS reformulated its objectives by enlarging the scope and developing a new conceptual thrust. NOS, while continuing the existing courses of the Open School Project, on the one hand, introduced several innovations in examinations, courses, etc., on the other. The secondary courses were revised and self-learning materials were developed. NOS introduced the decentralized delivery mechanism by establishing Regional Centres and expanding the number of Accredited Institutions (Study Centres). Decentralization has helped in streamlining the delivery system, particularly material supply, and in organizing personal contact programmes etc. The authorization to conduct examinations, the attribution of equivalence and the recognition of its certificate by national and state-level Boards of Education and several universities in the country, have been major achievements for NOS. It shows the credibility and acceptance that NOS enjoys among the formal education sector.

Besides programme delivery and examinations, NOS has become a national resource agency for open schools in India. As one of the objectives of NOS is to co-ordinate the quality and standards of open schools throughout the country, it plays an important role in promoting the open learning system and guiding different states in setting up open schools. NOS has signed memoranda of understanding with some states to provide them with learning materials and support for their staff.

Since NOS was established, student enrolment has increased immensely. Not only has the number of students increased, but NOS has the distinction

of drawing students from almost all states of the country. However, more than three-quarters of enrolled students belong to Delhi, Haryana, Andhra Pradesh and West Bengal, and more than one-third of students are from Delhi only. The regional and interstate disparities in the utilization of NOS may be mainly due to: difference between NOS and state-level syllabus and medium of instruction, lack of awareness about the open school in distant and faraway states, uneven distribution of AIs, and many states having their own open schools. Since NOS offers only English and Hindi as media of instruction, students from many states that have their respective regional language as the medium of instruction find it difficult to pursue the NOS courses in English or Hindi. Therefore, NOS students are mostly from Hindi-speaking states and Delhi. Surprisingly, even after the introduction of a few regional languages as media of instruction, the participation from these states has not improved, except in the case of Andhra Pradesh. More interestingly, NOS has a very negligible representation of students from educationally disadvantaged states, even when the medium of instruction in these states is also Hindi. Lack of awareness about NOS is another reason for low enrolment in different parts of the country. Accreditation is granted at the request of educational institutions based on demand for admission. In other words, efforts are not made to generate demand through AIs, but NOS responds only if there is a demand.

The profile of the students shows that NOS has been able to serve the intended clientele, which includes women, Scheduled Castes, Scheduled Tribes, and rural people. In fact, the lower economic group and first-generation learners constitute the majority of the students. However, a large proportion of students belong to the younger age group and non-working category, since most of the students who fail in public examinations in the formal system flow into NOS. This is more so in the case of students joining from Delhi as the pass percentage in government schools in Delhi is as low as 30-35 per cent. The factors that encourage failures from the formal system to join NOS are the credit transfer system from the formal system, flexibility in the scheme of studies and recognition of NOS certificates by the CBSE and higher education institutions.

NOS has adopted a multi-level delivery mechanism and Study Centre approach with print material as the main source of learning. NOS not only regularly revises the course materials, but also designs these as self-learning materials with simple language and adequate illustrations and graphics. NOS materials are considered to be of high quality and are used by some of the formal schools for their remedial teaching. NOS has developed an effective delivery system through the Study Centres so as to supply the materials to students on time. Although NOS does envisage the multimedia approach to learning, the dominant, if not the sole, source of learning is still the print material. There is hardly any evidence of the usefulness or utilization of even those few audio-video cassettes prepared by NOS in the recent past.

NOS uses the Study Centre approach, according importance to personal-contact programmes and monitoring closely through academic facilitators. NOS has increased the number of contact sessions to enhance student-tutor interaction and to strengthen the student services. In the absence of compulsory attendance, the extent of students attending the contact sessions varies widely. The contact programmes aim to help students in improving self-learning skills, tutoring on difficult concepts as well as providing general guidance and counselling. The evidence shows that both students and tutors prefer classroom teaching to tutoring. But the students find the contact programmes useful. With respect to real objectives, the quality of the personal-contact programmes is still far from satisfactory. Similarly, tutor-marked assignments, which constitute an important method for improving self-learning, remain a mere formality to qualify to take examinations, rather than being a feedback system to improve learning.

In the last 10 years, nearly 40 per cent of students were successful in clearing the final examinations and obtaining certification. In addition, the flexible examination system provided an opportunity for a number of students to complete different subjects and accumulate the credits. The pass percentage varies in different subjects. The pass percentage is very high in

languages, home science and social studies, whereas in subjects like mathematics and the sciences, the pass rate is low. The final pass percentage of NOS students, however, remains more or less at the same level as that of the students of the formal government schools in Delhi. This NOS percentage is better than the Delhi Correspondence School run by the Delhi Administration.

NOS is almost totally self-financed as government funding is negligible. In fact, government funding towards non-plan expenditure has declined steeply in the last 10 years. The main part of NOS income is generated from student fees, including tuition and examination fees. Sales of priced publications and prospectuses constitute around 10 per cent of income. In the last 10 years, recurring expenditure has increased whereas capital expenditure has not improved significantly. The increase in recurring expenditure towards student support services and printing of materials is greater compared to other components of the expenditure. The per capita student recurring cost has also increased in the last few years.

The increased per-student cost reflects quality improvement initiatives. It is true that in the last few years the student services have improved, in particular the personal contact sessions have increased by 50 per cent. The per capita student cost in NOS is still comparatively lower than in the formal schools, although the difference between NOS and government schools is not very significant.

The per-student capital cost in NOS is very low and has increased only marginally in the last few years. The reason for the low capital cost is mainly because NOS has still not invested in construction and in establishing high-technology equipment for the printing of materials and preparation of media programmes. It relies on private printers, and media programmes are mostly commissioned. The major capital cost has been on computers and acquisition of land for NOS campuses. Government funding towards non-recurring expenditure has increased considerably. The budget and expenditure analysis

of NOS shows that distance education at secondary level has more potential to be self-sufficient. With the increase in student strength, an economy of scale can be achieved as the per-student cost decreases. However, initiatives to improve quality, particularly the student support services etc., would lead to an increase in the per-student cost. Therefore, the widespread belief that distance education is cheaper than the formal system may not necessarily be true.

NOS has proved that vocational education can be successfully imparted through the distance education system. The very fact that the pass percentage in vocational courses is much higher than in the general education courses indicates that NOS is a pioneer in vocational education.

NOS has the commendable aim of venturing to provide educational opportunities for the disadvantaged, such as the disabled, through special AIs. However this programme is at its infant stage. Similarly NOS has extended its wings into basic education and is planning to launch different courses for neo-literates.

There are very few studies on distance education at secondary level. Students' perceptions of the open school and distance education are mixed. While the majority of students choose to join NOS in order to continue higher studies, it is also true that many students join NOS to improve their educational level and better their employment opportunities. Most of the students find the present fee structure reasonable and affordable. With regard to the quality of materials and their usefulness, there is positive feedback from the students. However, some of the students rely on popular guides available in the market and attend private tutoring in difficult subjects. Very interestingly, students find the lecture methods adopted in contact programmes as useful as the tutorials. The research on different aspects of NOS is not only limited, but also does not provide a wide cross-section of the country. Therefore it is difficult to make generalizations.

Issues and perspectives for the future

Although NOS has been able to achieve some of the objectives for which it was established, there are still some issues and problems to overcome. It would not be feasible and pragmatic to expect any one single national-level organization like NOS to cater for the varied educational needs of a country like India with its wide diversity and enormous disparities. Although NOS has been constantly striving to extend its outreach to different parts of the country, this goal has not yet been attained. A thin spread of students across the country makes it difficult to provide quality support services. Logistical problems and lack of proper monitoring affect the functioning of the Study Centres. Although NOS envisages a multimedia approach, the efforts towards making effective media interventions still remain at the initial stage. Expansion of AIs without regular and close monitoring may lead to the commercialization of distance education by these institutions at local levels. The very fact that some of the NOS students are spending a considerable amount on private tuition and paying more money than the prescribed amount gives signals of such problems.

The Regional Centres are expected to co-ordinate NOS activities and monitor the functioning of Study Centres and of personal contact programmes. Since the Regional Centres have only a skeleton staff and hire academic facilitators for monitoring, there is a lack of continuous monitoring and feedback. Through AIs, NOS has rightly developed linkages with formal education. Although NOS follows strict rules and guidelines in providing accreditation to formal schools, the quality of AIs varies widely as they are schools of a different management type. The credibility and quality of the open learning system would depend mostly on the effective functioning of AIs. Unlike in the formal system, the distance education students are neither organized nor is there any parental pressure on AIs. The students are at the receiving end. Therefore, NOS has to develop inbuilt monitoring.

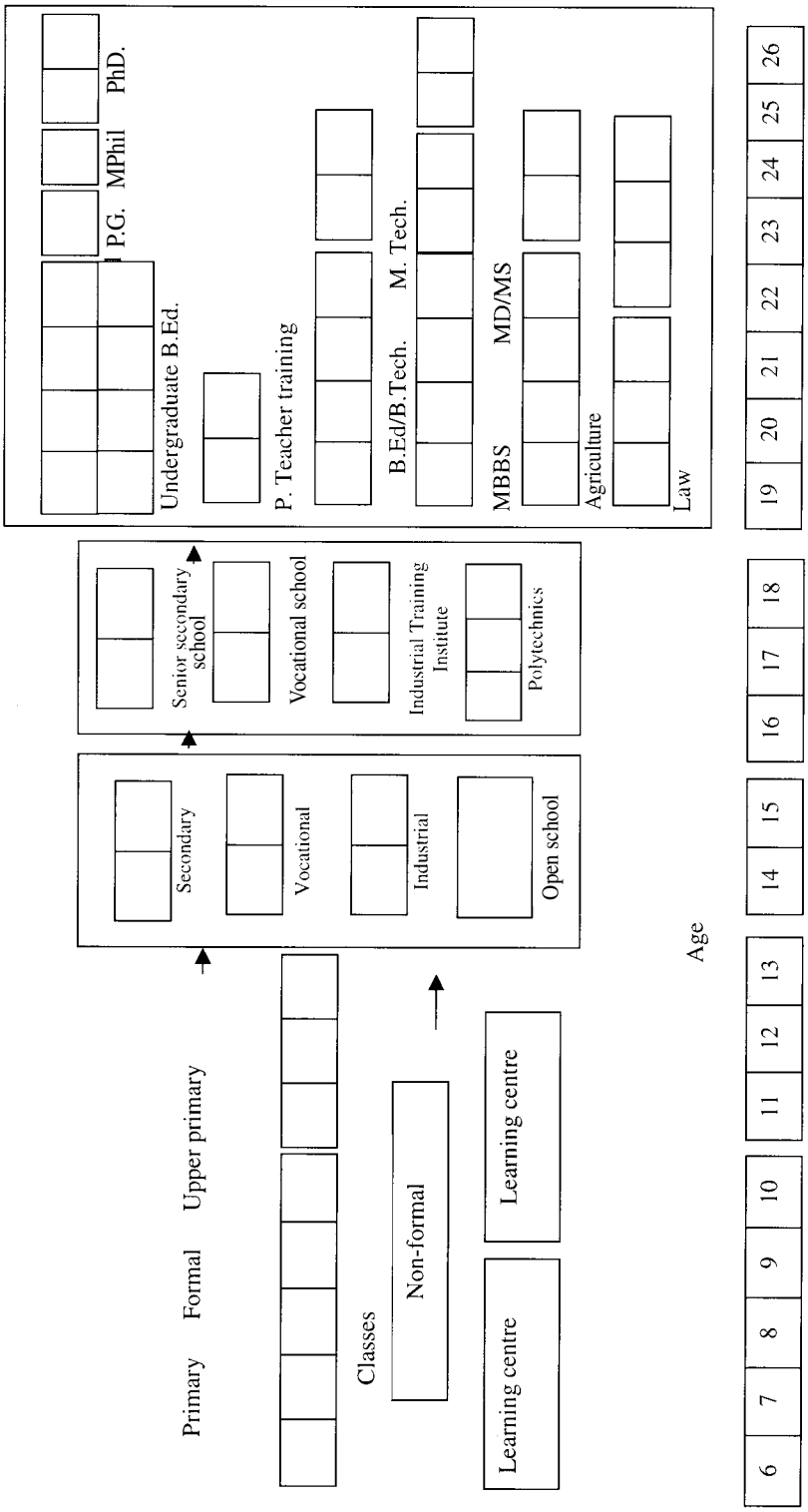
Flexibility and innovation are the hallmark of NOS, which has adopted a student-focused approach. Unless the proper counselling and guidance is provided, the students may not really benefit from the flexible system. For example, the NOS examination system provides a flexible scheme of accumulating credits, and a student can complete the course in a period of five years and nine examination sittings. Unless the students are able to understand the advantages of such a system, most of the students may follow the conventional examinations, taking all subjects at a time and consequently showing poor examination results. As such, the students should have proper assistance to assess whether they are ready to take examinations.

Since NOS opts for an open entry system, it has become of late an alternative for many who fail in formal examinations. They join NOS particularly as the credit transfer helps many of them to complete the secondary level easily. In the long run, this trend will not help NOS to achieve the objectives for which it was established. There is a need to put a check on this.

As mentioned earlier, it would be unrealistic to expect NOS to serve the entire country. Rather, NOS should be proactive in promoting state-level initiatives to set up open schools under the umbrella of NOS. NOS should play an important role in developing a network among the State Open Schools for maintaining quality and relevance through the National Consortium of Open Learning, which is already in vogue.

Conducting research on the open learning system is one of the objectives of NOS. However, little progress has been made in this area; evaluation of programmes and activities has not yet been attempted. There is an urgent need to take up research on different aspects of NOS for further improvement and strengthening. Similarly, staff development and the strengthening of academic staff at NOS and in the Regional Centres are essential.

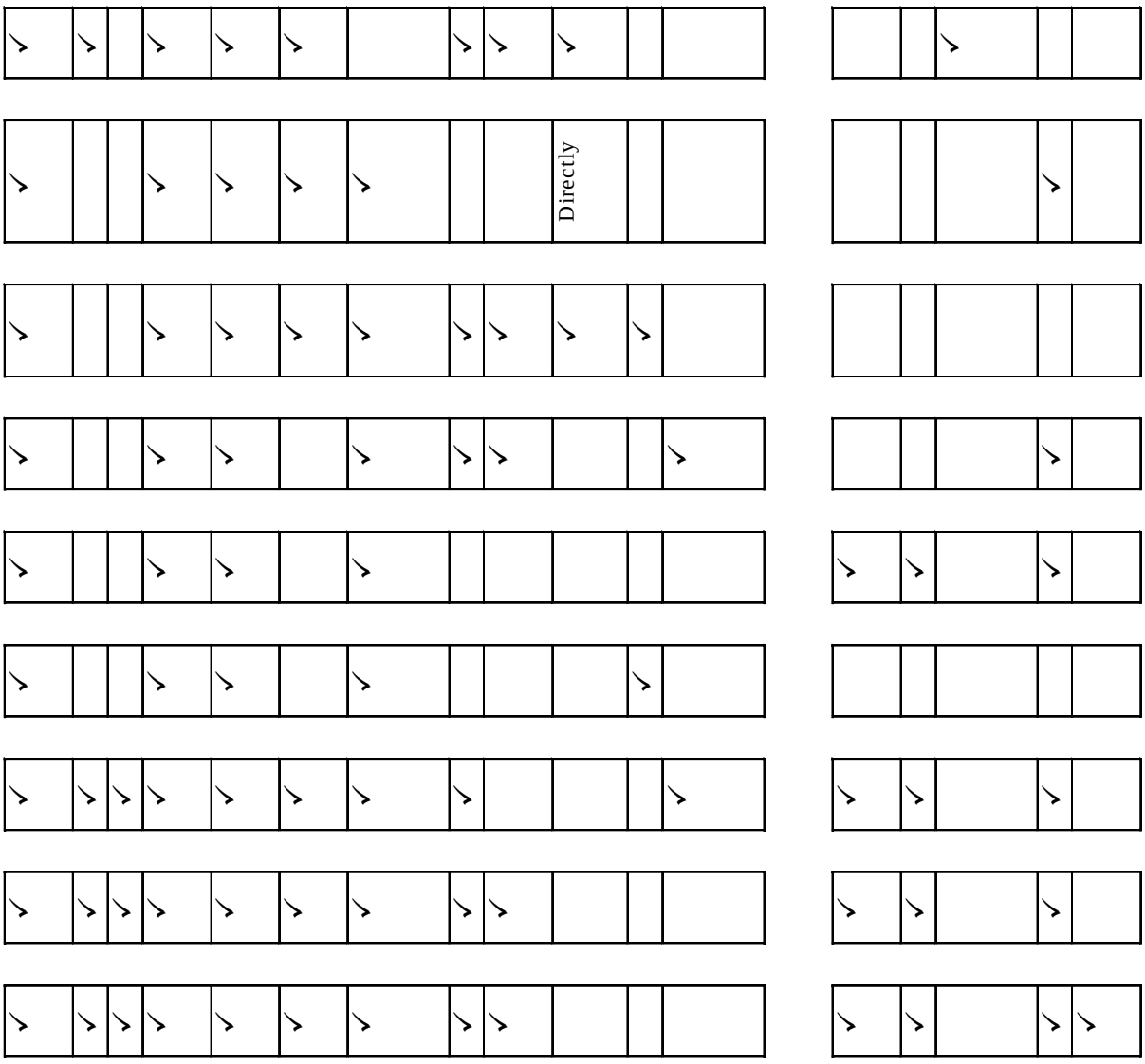
Appendix 1. Structural layout of the education system in India



Appendix 2. Common characteristics of NOS and other open schools

	1	2	3	4	5	6	7	8	9 *
Status									
Autonomous	✓					✓			✓
Located in State Board of Education		✓	✓	✓	✓				
Separate but under direct control of SBE/Ed. Dept.							✓	✓	
Entry									
No age limit (+14 years)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Levels									
Secondary/ Sr. Secondary	✓	✓	✓						✓
Only Secondary				✓	✓				
Only Upper Primary						✓			
Bridge course	✓								
Open basic education	✓								
Life-enrichment course	✓								
Vocational courses	✓								
Medium of instruction									
Hindi and English	✓	✓	✓				✓	✓	✓
Regional languages				✓	✓	✓			
Only Hindi									

Curriculum and examinations										
Flexible scheme of studies	✓	✓	✓		✓		✓	✓		✓
Flexible examination system	✓	✓	✓		✓	n/a	✓	✓		✓
Minimum five subjects	✓	✓	✓	✓	✓	3	✓		✓	✓
Curriculum equivalent to formal system	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Separate curriculum and syllabi	✓	✓	✓		✓	✓			✓	
Separate examinations	✓									
Formal education syllabi and curriculum				✓			✓	✓		
Formal education examinations				✓			✓	✓		
Follows NOS curriculum/syllabi	✓	✓	✓		✓					
Separate examinations conducted by SBE		✓	✓		✓	✓				✓
Admissions										
Direct admissions	✓	✓	✓	✓	✓	✓	✓	✓		✓
Admissions through AIs/Study Centres	✓	✓							✓	✓
Admissions through District Co-ordination Centres (DCC)			✓		✓	✓				
Admissions through District Education Office						✓				
Delivery mechanism										
Regional Centres	✓									
AIs	✓	✓							✓	
Study Centres	✓	✓	✓				✓	✓	✓	
DCC			✓		✓					
Cluster Centres						✓				


Media
Printed self-learning materials
Audio-video cassettes
Television transmission
Personal-contact programmes
PCPs organized in Study Centres
Practicals in science subjects
Tutors for PCPs are drawn from formal schools
Students' assignments
Materials supplied through AIs
Materials supplied through Study Centres
Materials sent by post
Materials supplied through DCCs/DEO Office
Directly
Examinations
Courses can be completed in five years
Nine sittings for exams
Course can be completed in three years (only for secondary education)
Credits cumulated
Credits transferred from formal schools

Weighting given for assignments in examinations						✓			
Can appear in exams one or more subjects	✓	✓	✓		✓		✓**	✓	✓
Examinations conducted twice a year	✓	✓	✓		✓	✓			✓
Examinations conducted once a year with supplementary examinations				✓			✓	✓	
Readmission allowed	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fees									
Self-financing	✓	✓	✓	✓	✓		✓	✓	✓
Fees concession for SCs/STs/ women	✓	✓	✓	✓	✓	✓	✓	✓	✓
Small proportion of funding from government	✓	✓	✓	✓	✓	✓	✓	✓	✓

* 1. National Open School
2. Madhya Pradesh Open School
3. Haryana Open School
4. Tamil Nadu Open School
5. Karnataka Open School
6. Andhra Pradesh Open School
7. Rajasthan Open School
8. Delhi Patrachar Vidyalaya
9. West Bengal Open School

** Only for Secondary Certificate Course

Source: Data regarding different characteristics of Open Schools were collected by questionnaire by the author.

Appendix 3. Comparison of NOS and CBSE Secondary Course (Xth Class) syllabi

CBSE	NOS
Social Science	**Social Science**
The Social Science curriculum has been divided into four areas: history, geography, civics and economics. These subjects are designed to provide an understanding of: the foundations, processes and perspectives of the subject matter.	The curriculum has been divided into four parts consisting of components from many subjects with a holistic coverage. These focus on issues such as: environment, culture, heritage, struggle for freedom, citizenship, basic economics, and population problems.
The subject matter in **History** consists of: • Evolution of human societies • Foundations of human civilization and unity of mankind • Contributions of various cultures to human progress • World historical perspectives and the contemporary world • Indian historical development and understanding of contemporary India • History of specific regions and countries	The subject matter in **History** covers: • Our cultural heritage • Characteristics of Indian culture • Our struggle for freedom • Nationalist activities • Revolutionary movements • Various mass movements
The subject matter in **Economics** consists of: • Contemporary economic problems • Effective participation in national reconstruction • Stress and strains occurring in the process of economic reconstruction • Physical and human resources of the Nation • Interlinkages between the various sectors of Indian economy • Basic terminology and elementary ideas of economics • Interpretation of simple statistical data	The subject matter in **Economics** covers: • Market environment • Population · Environment and quality of life • Development Programme for Economics However, There is **a separate subject** on Economics, which covers in detail the theories and other aspects of economics.

The subject matter in **Geography** consists of: • Interrelationship of man and the environment at global level • Interdependence of nations and regions of the world • Concerns about growing world population and its impact on environment • Conservation of natural resources · Regional economic development • Pace of development, national economy and social transformation etc.	
English	**English**
The CBSE has a comprehensive two-year syllabus for classes IX and X in English. The course is designed to equip the learner with present and future academic, social and professional skills. The contents focus on: A. Reading B. Writing C. Grammar There are two papers each in English in both classes IX and X. The reading section enables the learners to learn vocabulary and improve comprehension, drawing inferences and conclusions from given passages. The writing section enables learners to write letters, passages, stories and short texts based on verbal and visual stimuli. The grammar covers: • Verb forms • Tenses	The NOS curriculum aims to make the learner get information about the latest developments in various fields of knowledge and fit into the situations as well as his place of work. The course in English will equip learners with basic skills such as: • Understanding English spoken at normal conversational speed • Speaking English intelligibly • Reading intelligibly • Writing correctly and legibly Grammar and usage are also covered in order to provide the learner with basic skills: • Tenses • Questions • Adjectives • Articles • Prepositions

• Voices • Sentence structure • Indirect speech • Prepositions • Comparisons • Use of non-finites • Sentence connectors • Clauses The grammar enables the learner to write, read and speak English correctly. *NCERT books are prescribed for this purpose.	• Statement construction • Combining of sentences • Punctuation • Dictionary usage Some text material is identified for extensive and intensive study. Functional writing skills are developed through paragraph writing, letter writing, and speaking skills are also developed through proper listening and speaking. *Special Self-Learning Modules are prepared by NOS.
Science (CBSE)	**Science (NOS)**
The subject of science for the CBSE students is developed in order to provide them with an understanding of scientific concepts, principles and laws; develop scientific temper, develop a concern for a clean environment and preservation of the ecosystem; ultimately help undertake higher studies in science, vocation or professions. The subject matter covers certain basics of physics, biology, chemistry and environment-related curricula as well as the solar and space system etc. The curricular content is as follows: • Energy • Food and health • Environment and living resources • Natural resources • The universe There is practical work related to the above curricular content as well. This covers	The curricular contents are developed in order to enable the learners to understand and cultivate interest in science and encourage them to pursue it as a career, simultaneously providing knowledge to understand more about life and supersede blind faith. The curricular units are more basic and fundamental to the work of the day-to-day life. The contents cover aspects of physics, biology, chemistry, agriculture, health and nutrition, and communication etc. The units identified are as follows: • Measurement • About the universe • Motion • Environment • Life processes • Health, nutrition and hygiene • Agricultural practices and food preservation • Energy • Matter – structure and properties

conducting experiments, and maintaining practical records followed by a viva voce.	• Materials – their applications • Machines and instruments • Communications This is followed by practical work. The practical work covers three sections with 15 experiments, out of which the student has to cover one from each of the sections.
The CBSE curriculum has more theory and comprehensive subject matter, which deals in detail with the basics of the scientific theories and how to understand them with the help of experiments etc. The contents are distributed in parts for Classes IX and X. In IX Class the fundamentals of various sciences are taught and the X Class curriculum goes a little higher again with more theory and a greater emphasis in general on functional aspects of scientific knowledge and acquisition of skills.	The NOS curriculum prepares the learners to understand more of science and utilize it in their daily life, and to acquire knowledge that can enable them to supersede the various types of blind faith prevailing in society. The content in general covers many aspects that are highly useful in the present day, and knowledge of the modern developments that are taking place in society enables them to be more science literate.

Source: 1. Secondary Curriculum*, NOS, New Delhi, 1995.*
2. Secondary Curriculum*, CBSE, New Delhi, 1997.*

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