Chapter I
INTRODUCTION

I.1 STATEMENT OF THE PROBLEM:

Education has been studied from various points of view e.g., sociological, psychological and economic. The geographical perspective is relatively recent and is in its formative stage, particularly in India. The thrust of geographical approach to the study of education would apparently be descriptive with respect to distribution of educational infrastructure, enrolment ratio and the like or it will be aimed at measuring the spatial disparities in the distribution of these attributes. Two major pillars of any scientific study besides the descriptive part are the explanatory and analytical systems which enhance the possibility of diagnosis and prescription. On the whole geographical studies have lacked analytical systems to the extent they could comfortably predict and prescribe. They have been pathological in nature, in the sense that they could only indicate 'where' things 'are' and where they 'are not'. However, the importance of these studies cannot be underscored.

It would not be unreasonable to say that the various educational facilities, such as schools, colleges and parameters, such as investment in education, enrolment ratio, literacy level and levels of educational development are
characterised by unequal distribution over space. They are biased in favour of urban areas and areas which are relatively developed, thereby creating regional disparities. In order to support this opinion one has to empirically examine the nature of educational development with the help of a comprehensive framework of analysis. One will have to identify the areas which have been able to draw greater benefits than others in terms of allocation of educational infrastructure against those which have been deprived of it. One will also have to look for reasons as to 'why' and 'how' such patterns could development and 'what' are the ways through which balanced development could be attained.

Though the emphasis of any geographical study is on area — the unit of observation, any geographer cannot ignore different segments of population which live in those areas. After all area gains importance only with respect to human occupation of it. Inequality in education is not purely an educational issue for it cuts across the entire social, economic and political fabric of a territory, or for that matter, a country. No less important are the disparities between the males and females as expressed in space and with reference to socio-economic status. Therefore, a comprehensive geographical approach would also incorporate population in its study which itself shows a high magnitude of difference in terms of possession of material and non-material elements of being and access to social attributes necessary
for the development of it and its well-being. Naik\(^1\) rightly
cognised the nature of inequality in education:

"...there remain appreciable inequality of
educational opportunity at several levels and
in several sectors. From the national point
of view there will be wide gaps between advanced
states and backward states. At the state level,
we find great difference of achievement between
certain advanced districts and the backward dist-
rics. Even within the same district there are
often large difference between one tehsil of
the district and another and even within the
same tehsil, not all villages are equally
advanced. There are still large differences
between urban and rural areas. From the social
point of view, there is great inequality of
educational development between boys and girls
and also between the advanced communities on
the one hand and the scheduled communities on
the other."

Spatial and social inequality in the levels of develop-
ment characterises the modern world. Nevertheless, the
nature of inequality differs over time and space. In some
countries the prevailing magnitude of inequalities have
shown signs of narrowing down while in some others they
have widened. In some the problems which led to under-
development were corrected with the help of suitable planning measures, while in others despite several attempts
towards reform and reorganisation inequalities have only
been perpetuated. India belongs to the latter category.

Despite significant strides having taken place in the
post-independence era towards provisions of educational

\(^1\) J.P. Naik (1965), 'Elementary Education India', Asia,
Bombay.
facilities and growth of enrolment ratio, it is said that the patterns of educational inequality have remained virtually stagnant or have led to further deprivation of the underprivileged population and the backward regions of the country.

It has been felt by some scholars that many of the current educational problems faced in countries of the Third World can be directly attributed to the colonial policies which in content and form did not change in the post-colonial times. Others may suggest that the growth of education in the colonial period were superior in form and content to those existing in the past which provided for the secular and democratic means for the dissemination of knowledge to all irrespective of class, caste and sex affiliations. It is therefore pertinent to ask as to whether the colonial system of education and its policy implications led to more pragmatic, secular and democratic education than the one provided by the indigenous system of education? Could the colonial education system provide equal opportunities of access to education to all the segments of Indian population? Are the problems of quantitative expansion, qualitative deterioration of educational standards, disparities in the provision of educational facilities etc., a sequel to the colonial education system in particular and

socio-economic policies of the colonial administration in general or both? And as Watson\(^3\) would think that it would be proper to investigate whether "the colonial policy of education in India had been time- and region-specific" leading to disparities in the levels of educational development?

I.2 ORGANIZATION OF THE THESIS:

In order to examine these issues an attempt has been made to review the system of education as it indigenously developed and the one which grew in the colonial times. The time-span of this survey thus covers a period of over 160 years of educational development since 1813 when following the Charter of 1813, the East India Company accepted the responsibility of education in its territories. Thus in chapter II an attempt has been made to discover the historical roots of disparities in educational development, whereby the extent and coverage of the indigenous system of education has been dealt with in the face of its decline as the English system of education took its place on the soil of India. In the same chapter a separate section has been specially designed to review the colonial policies and development of colonial education system until 1947 -- the year India

became independent. An attempt has also been made to examine the colonial fiscal policy vis-a-vis development of education.

The chapters to follow deal with spatial appraisal of some of the educational attributes in the post-independence era. Chapter III and IV discuss the spatial disparities in the availability of educational infrastructure and the patterns of school enrolment respectively. In these two chapters care has been taken to reflect upon the policy framework of educational development as adopted by the centre and states from time to time.

Chapter V deals with the spatial pattern of investment in education. It has been attempted to see as to how financial resources have been allocated among the states of India and also among various stages of school education. It has been asked, in this context, as to what has been the nature of centre-state fiscal relationship impinging upon the unequal allocation of financial resources to education among the states. Besides a modest effort has also been made to argue for greater financial support to education as it has been found to be yielding greater returns to the economy. Several other issues either central or peripheral to the question of investment in education have also been taken up for discussion.

Lastly, chapter VI deals with the measurement of the levels of development of school education at the inter-state and inter-district levels. In the same chapter a
separate section has been added to discuss the correlates of educational development in India.

A summary of broad conclusions derived in this research have been presented in chapter VII, along with suggestions pertaining to the need to further examine not only the issues raised in this research but also some of the priority areas in educational development which could not be systematically taken up in this research.

I.3 THE THEORETICAL PREMISES:

Inequality seems to be the order of the modern capitalist system. The world today is characterised by various kinds of inequalities which may be identified not only in terms of the developed and the underdeveloped regions but also by the development of the 'capitalist sector' -- the core or the urban areas and 'rural one' -- the periphery. The two forms the 'modern world system', whose network unifies the periphery with the core into a single division of labour. This helps the core in its process of exploitation of surplus in the periphery leading to the accumulation of capital in the


core and emergence of the dominance-dependence relationship between the core and the periphery. 6

The core-periphery relationship in the system of regions works through a hierarchy of settlements within the periphery differentiated on the basis of their resource potentials and their relevance from the point of view of the core. 7 The core as well as the periphery contain within themselves an elite class with whom rests the economic and political power, thus enabling them to influence and control the decision-making process at various levels.

The system of hierarchy of settlements within the core-periphery structure, especially in the developing societies has been a product of their colonial legacy. The colonial capital, initially, attempted to transform the pre-capitalist society of their colonies into peripheral capitalist society by breaking down their local self-sufficiency and generate in them commodity production intended for sale. 8 But as Alavi puts it, not all structures of the pre-capitalist or


feudal social formations were transformed or changed — some were "conserved and others dissolved".

Growth and development in the case of peripheral capitalist societies becomes a function of the their surplus generation for appropriation by the metropolitan core. Although the dynamics of development are, quite distinct from those of metropolitan capitalism (the core), it has nonetheless been linked with the process of development of the latter.

The course and consequence of development in post-colonial phase may have ended their colonial status but not their place in the world capitalist system, which remained necessarily that of the peripheral capitalism. Although the metropolitan capitalism was not controlling the state (political) power anymore, the character of state did not change. As Baran reflecting upon the morphology of backwardness says, "their forms have changed, their intensities are different today, their origin and direction have remained unaltered."  

The course and consequence of development of education in India has been seen in this perspective. The indigenous system of schooling declined as a consequence of the colonial policy in general and the development of the British education


system in particular. However, indigenous schools were allowed to operate largely in the rural areas as vernacular schools. The urban areas became the seats of learning where modern schools and colleges in the states' as well as private sectors in education mushroomed. These catered to the needs of the urban and rural elites while the masses remained largely confined to the indigenous schools. Finally, indigenous schools were completely uprooted because they had lost their relevance in the colonial system, which had brought about large scale changes in the socio-economic and political fabric of Indian society. The urban-rural dichotomy in the levels of educational development emerged at this stage which eventually led to a series of deprivation in the rural areas.

In the course of time schools did appear in the rural areas only to help the newly educated ones to leave their villages and move to urban areas. The process of labour migration of unskilled alienated peasants (as a consequence of British land policy) was supplemented by migration of the young — skilled or semi-skilled population. While surplus labour moved from villages to the urban areas leading to excess of job-seekers than the actual demand, created unemployment and underemployment. The unemployed who formed the 'reserve pool of labour' worked in favour of the colonial-capitalist system. It helped the wages to remain low and
the larger profit accruing to the capitalists.

The elite classes on the other hand, did not suffer from the problem of educated unemployment. Only the middle classes and to some extent, the lower classes, were thus subjected to discrimination in two ways. First, the increasing rank of educated unemployment discouraged them from seeking education, and, secondly the education was expensive, as fees and other expenditure were beyond the capacity of the lower middle and lower classes. The process of selection and differentiation thus operated at the spatial and class levels sowing roots of disparities. The nature of disparity thus created in the times of colonial rule was associated with the process of alienation of traditional occupation of different classes and their non-absorption into the new economic system.

The period since independence has not seen any significant change. It is hypothesised that the colonial system of education which was elitist and 'core' oriented, continues to exist. The latest educational policy (1986) of India is an example of this.

The present study of the patterns of spatial disparities in the levels of development of school education with particular reference to the rural areas is a modest attempt to enquire into the validity of the argument presented above.
I.4 APPROACH:

A study in social geography must ask as to 'who gets what where and how'. This framework of investigation provides a comprehensive foundation of investigation whereby the object in question is not treated in isolation. For the present purpose, therefore, education has to be seen as a sub-system of the larger socio-economic and political super-structure which is influenced by it in many ways, and, in turn gets affected as well. This approach also contains the essentials of present day scientific studies whereby posing the question 'how' it demands for an explanatory-predictive-prescriptive framework of analysis.

The objective of social geography of well-being lies in the evaluation of the social desirability of 'alternative geographical states'. A geographical 'state' or situation may refer to any aspect of the spatial arrangement of human or social existence. It may relate to the spatial allocation of resources, income or any other source of human or social well-being. For the present research purpose it refers to the spatial arrangement of educational attributes, the incidence of literacy, enrolment, awareness or ignorance which has unequivocal bearing on the quality of life, as a geographical variable condition. And beneath them, of course,

is the type of society - the economic, social and political structures that generate and give shape to the broader patterns.

By posing the question - "Who gets what where" - as Smith says:

"One attempts to consider the relevant ways in which the population of whatever territory is under investigation may be aggregated, on the basis of such common characteristics as social class and economic status. Asking "What" refers to the object of the study - education in the present case - that which constitutes the life quality. Asking "where" raises the basic geographical question of the most sensible subdivision of territory for the purpose of investigation - a particularly important problem in empirical research, for a distribution of educational attributes. Asking "how" requires the identification and understanding of the structure, process or causal mechanism at work within a spatial structure leading to a particular pattern of who gets what where. The spatial concept of welfare incorporates everything differentiating one society from another - not directly observable but that which can be judged on the basis of alternative patterns of distribution which seek to bring about a change in the nature of differentiation."

The purpose of this research is to develop a schema of educational development and the associated problems of measurement. Therefore, it becomes imperative to define educational development. Educational development can be defined if only one is able to define "development". Here arise the crucial problem. Development has been perceived by scholars from various disciplines in various ways. Some interchange it with "growth" and some with "progress". A few scholars equate development with "modernization" as
against traditional ways of life and take a position whereby "westernization" and development become undistinguishable. For some scholars "development" is "qualitative" in contradistinction to those who consider it to be "quantitative". On the whole it can be said that there is hardly any consensus on the definition of development. The case of defining "educational development", therefore, becomes further vulnerable.

1.4.1 Defining Educational Development:

For quite some time development meant economic development measured in terms of per capita G.N.P., or monetary value of production. This conception came increasingly into question. Recently some serious attempts have been made to extend the concept of development beyond economic performance. Drewnowski\(^\text{12}\) has stressed the essential unity of the development process: "There is only one socio-economic reality. This is a body of facts about how people use limited resources to satisfy their needs, about the relations between people or group of people arising out of the usage and about the position in which they find themselves as a result. Development is a process of qualitative change and quantitative growth of the social and economic reality which we call either society or economy". The conventional economic concept of

\[12.\] J. Drewnowski (1974), On Meaning and Planning the Quality of Life, Methuen, Hague, pp.94-95.
development is inconsistent with this view. As Drewnowski\textsuperscript{13} explains: "To obtain a complete picture of development it is not sufficient to realize the amount of resources brought about by (economic) growth. It is also necessary to examine the impact of these resources on the life of the people." Drewnowski's model of generalization of human well-being exemplifies his conception of development as: "The unfolding of creative possibility inherent in a society" as opposed to growth which is merely "an expansion of the system in one or more dimensions without change in its nature."

Development is also very much a question of values, whether it is viewed as a complex, multi-dimensional phenomenon or merely uni-dimensional (with G.N.P., per capita or literacy rates or enrolment ratio). As Baster\textsuperscript{14} puts it: "Development is necessarily a normative concept, and involves values, goals and standards which make it possible to compare a present stage against a preferred one. This raises immediately the question of whose values and goals are to be taken into account in assessing development. Planners' values or or people's values?" It further raises the question of "development for whom" and "development for what" or assessed

\textsuperscript{13} Ibid., p.96.

or perceived by "whom" in the light of the fact that desirable goal or change is almost invariably portrayed as western-style development, assisted by "value-loaded and culturally biased nature of what most pundits and planners have in mind to improve the lot of the underdeveloped world... the capitalism as the assumed mode of production." Further Goulet captures the essence of development as improvement or human progress: "Development can be properly assessed only in terms of the total human needs, values and societies undergoing change. Although development implies economic, political and cultural transformations, these are not ends in themselves but indispensable means for enriching the quality of human life." He recognizes three general goals of development — life sustenance, esteem and freedom. While the necessities for the sustenance of life in a purely biological sense are common to all people, those things on which esteem and freedom depend may be very much culture-specific. For the present purpose, therefore, one can say that - (a) for the purpose of analysis and measurement of educational development we


cannot wholly depend on indicators like enrolment ratio or literacy rate. In spite of nearly universal agreement that development (educational development included) involves more than enrolment and literacy ratios, they have remained the common indicators of educational development. If other factors, i.e., infrastructure and educational investment, etc., are to be considered as indicators of amount of resources and impact of these resources on education (as Drewnowski perceived) as a part of the objectives of development, then a different approach for measurement is acquired which would take account of a region's real educational level; (b) the process of development involving both economic and social variables do not form a uniform linear progression of a set of variables but rather are changing complex of factors which moves at different rates in relation to each other and move in and out of importance at different levels of development and in different types of regions. Thus what may appear relevant to one area/region or for one society may not necessarily constitute the same in the other.

On the basis of the argument developed above and in the light of advantages of incorporating the conceptions of Smith, Drewnowski and Goulet one may attempt to define educational development as a process of qualitative change and quantitative growth towards an improvement in the welfare of people/

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area with respect to who gets what, where. It implies the qualitative impact of quantitative growth and expansion on the various aspects that constitute life of the people and is instrumental in the achievement of desired goals such as life sustenance, esteem and freedom. It is not an end in itself but indispensable means for enriching the quality of human and social life.

A further look into the various components of the definition is required. Educational development in the above mentioned definition has been perceived as a quantitative growth accompanied by a qualitative change - from the state of ignorance and illiteracy (being) to the state of awareness, knowledge and literacy (becoming, an improvement) of a comparatively larger world much beyond the personal space of an individual or the interactive space of a society. It brings about change (or improvement) in attitudes of people towards each other and also towards the environment at large. Such qualitative change is responsible for an improvement over an egalitarian social order.

The component of quantitative growth is easy to conceive. It refers to increase in enrolment, number of educational institutions, investment, etc. These are then measured in terms of who (class, groups, castes, males, females) gets what (educational attributes) and where (place, region, rural, urban).
This framework helps in order to make a clear distinction between development and other related concepts. Development as an improvement can take place in commodity space, utility space and geographical space, i.e., it can arise from a better access to the phenomenon in question (educational attributes), better distributed among individuals (or groups or classes) and among places. Growth implies a larger cake with reference to who gets how big a slice. If a massive growth of literates at various levels of education accrues largely to an existing wealthy class or to a developed region (as has been the case in India) a rather extreme value position is required to find this as an improvement. The framework of educational development envisaged for the proposed research under the framework of social well-being comes closer to the broad conception of development as human progress.

Therefore, within the theoretical perspective and approach mentioned above an attempt will be made towards identification of levels of educational development by incorporating what a region/nation/area produces and shall also specify group and territorial sub-divisions relevant to the evaluation of distribution.

1.5 OBJECTIVES:

In this study following main objectives have been kept in view:
(a) To develop an analytical framework for the measurement of educational development with the help of selected educational indicators derived from primary and secondary sources;

(b) To explore and establish relationships among the selected indicators at different areal levels - both macro and micro;

(c) To measure the spatial patterns and processes of educational development and disparities, and, trace the evolution of disparities among regions and among various social segments inhabiting the study area. The latter has been done at the micro level in much greater detail;

(d) To evolve an explanatory system to account for the variation in the behaviour of various developmental indicators across regions and communities.

I.6 THE RESEARCH DESIGN:

The spatial analysis and measurement of the levels of development of school education in India has been carried out at three levels of areal aggregation:

(i) At the all-India macro level by taking states as the unit of study, based on information drawn from secondary sources;

(ii) At the meso level by selecting two sample states for inter-district study of the problem, based on secondary sources of information; and
(iii) At the micro level by selecting three villages in three districts drawn from the two sample states. Thus, conducting an enquiry based on primary data collected from 18 villages in two states.

1.6.1 The Sample Design:

Stage I:

As the purpose of this research has been largely to account for the poor levels of development of school education in rural areas, the two sample states were drawn on the basis of the following criteria:

(i) the proportion of rural population to the total population;

(ii) the enrolment ratio in elementary education in rural areas; and

(iii) the per capita state domestic product.

Thus, in the context of the first and the second criteria two states which belonged to the lowest ranks at the same time having differences in the per capita income levels were selected. On applying the random sampling technique for the second criterion only Bihar and Haryana were selected as the sample states for district-wise study of the levels of development of school education.

Stage II:

The next stage required selection of three sample districts for a village-wise study. These sample districts were to be drawn on the basis of their enrolment ratio in the
elementary education. For this purpose all the districts of the two sample states were first categorised into high, medium and low enrolment classes and then one district from each enrolment-class was randomly selected. The following districts were thus selected: Patna, Ranchi and Saran from Bihar and Ambala, Sirsa and Gurgaon from Haryana.

Stage III:

At the third stage nine sample villages — three villages from each sample district — were to be drawn for the purpose of generating field data. It was felt that enrolment levels in villages may differ on the basis of the size of villages — i.e., large villages with better facilities of schooling may have high enrolment levels in comparison to the small size villages. The size of a village was determined on the basis of its population drawn from 1971 census figures.

Thus three size-classes of villages based on population were prepared and all the villages of the six sample districts belonging to the two sample states were categorised. The three size-class categories were as follows:

(i) 1,000 persons and less,
(ii) 1,000-2,500 persons, and
(iii) 2,500 persons and more.

The three sample villages each from the six districts of Bihar and Haryana were then randomly selected. The list of sample villages, along with their population at 1971 census, is given in Table I.1 below.
Table I.1: **Sample Villages and their Population**

<table>
<thead>
<tr>
<th>Name of the Village</th>
<th>District</th>
<th>Population 1971</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) 2,500 &amp; above</td>
<td>BIHAR</td>
<td></td>
</tr>
<tr>
<td>(a) Fatehpur</td>
<td>Patna</td>
<td>5324</td>
</tr>
<tr>
<td>(b) Dumri</td>
<td>Saran</td>
<td>4171</td>
</tr>
<tr>
<td>(c) Sukurhutu</td>
<td>Ranchi</td>
<td>4235</td>
</tr>
<tr>
<td>(ii) 1,000-2,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Simli Murarpur</td>
<td>Patna</td>
<td>1319</td>
</tr>
<tr>
<td>(b) Karinga</td>
<td>Saran</td>
<td>1709</td>
</tr>
<tr>
<td>(c) Kathankul</td>
<td>Ranchi</td>
<td>2464</td>
</tr>
<tr>
<td>(iii) 1,000 &amp; below</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Gauharpur</td>
<td>Patna</td>
<td>921</td>
</tr>
<tr>
<td>(b) Bajidpur</td>
<td>Saran</td>
<td>640</td>
</tr>
<tr>
<td>(c) Murum</td>
<td>Ranchi</td>
<td>411</td>
</tr>
</tbody>
</table>

(i) 2,500 & above

(a) Koli
(b) Raipur Rani
(c) Bhondsi

(ii) 1,000-2,500

(a) Ferozabad
(b) Dera
(c) Harsaru

(iii) 1,000 & below

(a) Fatehpuria
(b) Kalal Majra
(c) Tigra

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Stage IV:

The last stage of sampling required selecting sample households for a detailed household survey based on a structured questionnaire. While selecting the sample household
the village schedule was referred to for which data was obtained from the village records available with the patwari or the secretary of the panchayat. It was decided that a survey of at least 5 per cent of the total households of the village should be covered by this study. The sample households were selected on the basis of the data on distribution of operational holdings obtained from the patwari. With the help of the villagers and the patwari records households in the following four groups were identified and surveyed:

(i) Landless - who did not own any land;
(ii) Small farmers - who owned less than 2.5 acres of land;
(iii) Medium farmers - who owned more than 2.5 acres but less than 10.0 acres of land;
(iv) Big farmers - who owned more than 10 acres of land.

The classification although subjective provides a wide coverage of households in rural areas of Bihar and Haryana. Table I.2 substantiates this point.

Table I.2: Percentage of Households by size class of Operational Holding in Bihar and Haryana

<table>
<thead>
<tr>
<th>Size class of Operational Holding (acres)</th>
<th>No. of Households (%)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bihar</td>
<td>Haryana</td>
</tr>
<tr>
<td>Landless</td>
<td>21.71</td>
<td>39.09</td>
</tr>
<tr>
<td>Less than 2.50</td>
<td>43.46</td>
<td>17.53</td>
</tr>
<tr>
<td>2.50 - 10.00</td>
<td>28.79</td>
<td>23.33</td>
</tr>
<tr>
<td>More than 10.00</td>
<td>6.04</td>
<td>20.05</td>
</tr>
</tbody>
</table>

Source: Dandekar and Rath (1971), Poverty in India, Indian School of Political Economy.
When one looks at the distribution of Households by size class of operational holdings, one finds that nearly 43.0 per cent of the rural households in Bihar and nearly 20.0 per cent in Haryana possess land up to 2.50 acres. While over 28.00 per cent in Bihar and 23.00 per cent in Haryana have more than 25 acres but less than 10.00 acres of operational holdings. The nature of distribution observed above and the classification of village households into four categories suggested in this study helps cover majority of the village households and therefore the scheme and the sample thus drawn are quite representative of the agrarian structure in the countryside of Bihar and Haryana (Table I.3).

Table I.3: Distribution of Sample Households by size classes of Land Holdings in Bihar and Haryana

<table>
<thead>
<tr>
<th>Land-holding classes</th>
<th>No. of Sample Households</th>
<th>Bihar</th>
<th>Haryana</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Landless</td>
<td>101</td>
<td>63</td>
<td></td>
</tr>
<tr>
<td>2. Small cultivator</td>
<td>79</td>
<td>66</td>
<td></td>
</tr>
<tr>
<td>3. Medium cultivator</td>
<td>67</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>4. Big cultivator</td>
<td>29</td>
<td>49</td>
<td></td>
</tr>
<tr>
<td>5. Total Sample (1+2+3+4)</td>
<td>275</td>
<td>235</td>
<td></td>
</tr>
<tr>
<td>6. Total no. of HH in the sample villages</td>
<td>2,737</td>
<td>2,221</td>
<td></td>
</tr>
<tr>
<td>7. Sample HH as per cent of total HH</td>
<td>10.04</td>
<td>10.53</td>
<td></td>
</tr>
</tbody>
</table>

The coverage of school-going population was also comprehensive. This is reflected from Table I.4.
Table I.4: Total population in the School-going age (estimated) and the coverage of Sample population in the respective age-groups

<table>
<thead>
<tr>
<th>Age-cohorts (years)</th>
<th>Total popn.</th>
<th>Sample per popn.</th>
<th>Total popn.</th>
<th>Sample per popn.</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 - 11</td>
<td>4737</td>
<td>772 16.30</td>
<td>4217</td>
<td>564 13.37</td>
</tr>
<tr>
<td>11 - 14</td>
<td>2100</td>
<td>432 20.60</td>
<td>1616</td>
<td>368 22.77</td>
</tr>
<tr>
<td>14 - 18</td>
<td>2866</td>
<td>378 13.20</td>
<td>2026</td>
<td>291 14.36</td>
</tr>
<tr>
<td>Total</td>
<td>9703</td>
<td>1582 16.30</td>
<td>7859</td>
<td>1223 15.56</td>
</tr>
</tbody>
</table>

Stage V:

In the last stage schools were visited in the sample villages and data pertaining to enrolment and attendance were collected. At the same time students belonging to various sections of school education were given a questionnaire to respond. In all over 400 school students were interviewed with the help of questionnaire and wherever possible some of the school drop-outs were also interviewed.

1.7 DATA BASE:

It has been stated that the research comprised two levels of enquiry - first, at the macro and meso levels for which statistics were obtained from the secondary sources. The list of statistical handbooks, documents, records and manuscripts referred to is presented below. In the second level of enquiry data was obtained from the field through personal visits, observation and canvassing of three different questionnaires (Appendix I ).
I.7.1 Secondary Sources:

1. Third and Fourth All-India Educational Surveys, 1973 and 1978 respectively, particularly the volumes on all-India school education, Bihar, and Haryana, NCERT, New Delhi;


4. Analysis of Budgeted Expenditure on Education 1960-61 to 1985-86; Ministry of Education and Culture;


6. Education in India - Quinquennial Reviews - All-India, Bengal, Bihar and Orissa, and North Provinces, 1891 to 1941;


Besides, statistical handbooks of states were referred to from time to time.

I.8 METHODOLOGY:

A detailed list of various types of indicators of educational development has been presented. It has also been envisaged to lay down an explanatory framework. But the nature of development data is such that a study whether cross-national, regional or temporal does not justify the use of correlation analysis or regression analysis to determine directions or extent of causal influence or functional dependency in the development process. Development involves a

good number of variables that correlate with each other
and therefore educational enrolment has been viewed to be
correlated with a number of variables. No attempt has been
made to work out the nature of independence - dependence
through statistical analysis. The purpose of this study is
to formulate an explanatory system on the basis of certain
conceptual and theoretical positions. The researcher's
value-judgement must have certainly played a major role in it.

I.8.1 Indicators of Educational Development:

The measurement of the levels of development of school
education involves selection of indicators which would help
ascertain their nature of spatial variation and constitute
elements of the composite indices on the basis of which the
typologies of development could be obtained. In chapter VII
a detailed discussion on the choice of indicators has been
made. Here, an attempt will be made to review some of the
important studies pertaining to the problem of educational
development. Susane Walker21 suggests measurement of educa-
tional services in space with the help of what she calls
'Demand variables' and 'Resource variables'. In her schema
of 'demand variables' population in the school going age,
unemployed labour force, composition of the labour force,

population classified by religious beliefs, number of dis-
advantaged schools, non-attendance and population change
have been considered. The indicators of resource variables
include three different sets of educational services - namely,
the provision of educational establishments, types of educa-
tional establishments and provision of teachers and buildings.
Harbison and Myers\textsuperscript{22} in their pioneering study on strategies
of Human Resource development have used per capita GNP,
population engaged in agriculture, stock of high level man-
power, enrolment ratios, enrolment in science, technology,
humanities and arts; expenditure on education in relation to
national income and population in age-group 5-14. Apparently
their purpose was to observe the relationship between educa-
tion, economic growth and manpower development. Rudolph and
Rudolph, Tilak, Pandit, Panchamukhi and Laska\textsuperscript{23} have used
largely enrolment ratios and in some cases like that of
Tilak's educational cost has also been included in the frame-
work of indicators for working out educational development
index.

One of the recent studies by IIEP has suggested six
sets of indicators under two broad categories (Table I.5).

\textsuperscript{22} Frederick Harbison and C.A. Myers (1968), \textit{Education,

\textsuperscript{23} See chapter VII.
Table I.5: **Indicators of Educational Development**

<table>
<thead>
<tr>
<th>Indicators of Means</th>
<th>Indicators of results</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) Accessibility</td>
<td>(A) Access to the different levels of the educational system</td>
</tr>
<tr>
<td>(i) Physical</td>
<td></td>
</tr>
<tr>
<td>(ii) Economic</td>
<td></td>
</tr>
<tr>
<td>(iii) Socio-cultural</td>
<td></td>
</tr>
<tr>
<td>(B) Formal quality of the educational service</td>
<td>(B) Progress through school</td>
</tr>
<tr>
<td>(i) Composition and qualification of the teaching staff</td>
<td>(i) Promotion</td>
</tr>
<tr>
<td>(ii) Composition and grouping of pupils</td>
<td>(ii) Excess years in school (stagnation)</td>
</tr>
<tr>
<td>(iii) Availability and quality of facilities</td>
<td>(iii) Retention</td>
</tr>
<tr>
<td>(iv) Availability and quality of buildings</td>
<td></td>
</tr>
<tr>
<td>(C) Actual quality of the educational services</td>
<td>(C) Levels of cognitive achievements, skills and attitudes</td>
</tr>
<tr>
<td>(i) Degree of utilization of facilities</td>
<td></td>
</tr>
<tr>
<td>(ii) Pedagogical attitudes of teachers</td>
<td></td>
</tr>
<tr>
<td>(iii) Social climate of the school</td>
<td></td>
</tr>
</tbody>
</table>


In their attempt to improve upon the schema of indicators developed by the IIEP, educational scientists at NIEPA have in the light of the availability of educational statistics in India suggested the following categories of indicators:
(i) Indicators of accessibility,
(ii) Indicators of availability,
(iii) Indicators of quantity,
(iv) Indicators of quality,
(v) Indicators of interconnectivity,
(vi) Indicators of equity, and
(vii) Indicators of utility.

As it can be seen this schema does not include any indicator pertaining to investment in education. However, the seven-tier package of indicators can accommodate the indicators on investment in education depending upon the conceptual framework of research and the value premises of the scholar.

In the present study indicators were selected for the following categories.

1. **Indicators of Enrolment:**
   
   (a) GER for boys and girls at Primary stage of schooling.
   
   (b) GER for boys and girls at Middle stage of schooling.
   
   (c) GER for boys and girls at secondary stage of schooling.

2. **Indicators of Educational infrastructure:**

   (a) Availability of primary, middle and secondary schools within the habitations.

   (b) Availability of schools at different distances from the habitations and population covered in each distance-category.
(c) Teacher-pupil ratio at primary, middle and secondary stages of education.

(d) Proportion of female teachers at the primary and middle stages of school education.

(e) Proportion of single-teacher primary schools.

3. Indicators of Investment in education:

(a) Total budgeted expenditure in education as per cent of the state net domestic product.

(b) Total budgeted expenditure in education as per cent of total plan-expenditure.

(c) Proportion of expenditure on various stages of education in relation to the total expenditure in education.

(d) Per-pupil expenditure at various stages of school education.

I.8.2 The Method of Measurement:

In the studies referred to above a variety of measures of educational development have been used. Some used principal component analysis to determine weightages (Panchamukhi, Tilak and Susanne) while some have used arbitrary methods of weights. Tilak in a different study and Pandit have used unitary weights for all variables using ranks. Usha


Kumar in Karnataka study used arbitrary method of categorising districts on the basis of literacy rates which is combined with "educational facilities score" obtained in terms of percentage in 1971 over 1961. He also uses ranks to determine disparities in educational development.

Tilak uses two kinds of weighted composite indices of educational development — the constant cost weighted index (using proportions at the all-India level as the weights) and the varying cost weighted index. His second method is an improvement over that suggested by Psacharopoulous. Panchamukhi's latest study on disparities in social infrastructure uses two methods (a) the average of inter-correlations among different core indicators of education as the weights and (b) the method suggested by N.S. Iyengar and Sudarshan which takes the individual value of an indicator for the state minus minimum value upon maximum


minus minimum value. Reddy\(^30\) uses the taxonomic method developed in 1950's and proposed by UNESCO in 1968 as a tool for ranking, classifying and comparing countries by levels of development.

In this study a modified taxonomic method has been used. The advantage of this method is that it does not require knowledge of high level statistics and mathematics. Central to this method is the concept of average value. The modification in the taxonomic method has been suggested by using Kundu's\(^{31}\) method of doing away with the scale bias of an indicator instead of using standardization method or mean-standard deviation method. Kundu suggests division of each observation in the series by its respective mean.

The construction of composite indices based on the above method involves the following stages:

1. Arrangement of selected indicators or group of indicators in tabular form;

2. As the taxonomic method aims at constructing a unitary index of development it is necessary to add at an appropriate stage the values of all the selected indicators. But since

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the values of indicators have different units, they are to be converted into one unit by freeing them from the bias of their respective scales;

3. For this purpose means of all the indicators were worked out and each value in the series divided by its respective mean thus making the original data-matrix scale-free;

The advantage of this method as suggested by Kundu is that it does not disturb the original order or ranks and maintains the ratio scale as well;

4. In the fourth stage the scale-free data is added row-wise for each geographical unit of observation. This helped in constructing the composite index;

5. The problem faced in this study was that composite indices for three sets of indicators were separately worked out in order to ascertain their levels of variation in space. These composite indices were to be used for the construction of the final composite index or the cumulative composite index. If each of these sets of indicators and the number of indicators are examined one finds that they are unequal. For example, the set of enrolment indicators have six entries while that in the case of educational infrastructure have more than six. A cumulative composite index thus derived would be automatically weighted in favour of the latter. In order to avoid this bias inadvertently entering into the schema the composite indices of each set were divided by a common value -
i.e. the number of indicators in each set.

In doing so it was observed that while a further division reduced the inter-state and inter-district disparity, it did not disturb the rank order of the spatial units.

6. The final composite index thus derived was categorized into classes of high, medium, low and very low levels of development of school education using a statistical device as given under -

- **Very Low** - $\bar{x} - \frac{1}{2} SD$ and less
- **Low** - $\bar{x} - \frac{1}{2} SD$ to $\bar{x} + \frac{1}{2} SD$
- **Medium** - $\bar{x} + \frac{1}{2} SD$ to $\bar{x} + 1\frac{1}{2} SD$ and
- **High** - $\bar{x} + 1\frac{1}{2} SD$ and more.

7. However, for working out levels of development of school education among the sample villages composite indices have been derived on the basis of enrolment figures and availability of school infrastructure only. These two sets of variables have been ranked and addition of ranks for each village gives the composite index of development. Higher value of composite index reflects low levels of development and vice-versa.