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CHAPTER - IV
METHODOLOGY

4.1 Design of the Study

The present study is designed and aimed at examining and comparing the cost of Education and Academic performance in the schools of NUH and SOHNA blocks of Gurgaon district in Haryana. Cost of education is incurred at two domains: private and the public domains, which also respectively are inferred to as individuals and institutional domains (Majumdar, 1983). Cost of education incurred at individual domain includes cost incurred either by the pupils or their parents or by both under the head of fees, books and stationery, uniform and maintenance, conveyance and transportation, etc. Cost of education incurred at institutional domain includes cost incurred by the Government/State/Local Authority or the institute, includes recurring and non-recurring expenditures. In the present investigation, the components of expenditure on education are grouped under private cost and institutional cost. In private cost, though the investigator has not included the same in the study but the items can be included in the expenditure on education by pupils or their parents such as: expenditure in the form of fees which include tuition fee, development fee, admission fee, examination fee, expenditure on books and stationery, uniform, maintenance, conveyance and transportation, etc.

In institutional cost, investigator has included recurring as well as non-recurring expenditures and subsidies. Under recurring expenditures, items like salaries of teaching and non-teaching staff, the bills on water, electricity, telephone, news paper and magazines, conveyance expenses, printing charges, stationery and postage charges, teaching inputs like chalk/chart/dusters, maintenance and repair of the establishment, etc. have been included where as in non-recurring expenditures items such as: depreciation on land and buildings, furniture, books, office and lab equipment and vehicles, etc. have been considered. Under subsidies, free-ships and scholarships have been included.

Academic performance of the school may not be merely confined to academic results but all other activities as well. Though this point of view is highly
valid, objective measurement of all other activities being carried by a school is difficult and rather quite impractical. Academic performance presently is a very broad term covering a lot of variables. Otto (1958) considered the pupil personal services to society, library facilities/services, general school building and accommodation as variable for Academic Performance. Machiman (1962) has drawn attention towards teachers and their qualities and school plant; Raymond (1974) concluded the curriculum, supervision, counseling and guidance, school discipline, teacher personnel, school building and community relations; Pole (1979) emphasized teaching personnel, school plant and equipment; Burgess (1979) considered organization of the school, curriculum, home department, uniform, PTA, and examination system as the indicators of Academic Performance.

It is also true that on the home front, the factors affecting the students achievements are the socio-economic and educational status of the family, discipline, career planning, aspirations and ambitions. The measure of family discipline and parental control and the home environment of the students are the key factors for the achievement. By keeping in mind the aforesaid discussion the investigator considered the following indicators of Academic Performance for the present investigation.

1) **Students performance**, which has been measured by pass percentage, division wise analysis, rate of selection of students for admission, students' previous academic performance, socio-economic status of students' parents, etc.

2) **Facilities and infrastructure**, which has been examined by student teacher ratio, school building location, facilities for library and co-curricular activities and laboratory facilities.

3) **Students' discipline**, which has been measured by dress code, uniform, students' regularity and punctuality, students strike, etc.

4) **School administration**, which has been studied by examining the qualification, experience and role of principal, PTA, etc.
Moreover, the study is conducted using a survey design. The basic framework was developed after reviewing various studies and related literature by the investigator. School is treated as the unit. The head teacher, teachers within the school and Village Pradhan/Sarpanch are selected in the villages for collecting data. In addition, information regarding the cost and expenditure are collected from both the selected blocks and district level authorities. Secondary data are also utilized for conducting the research work.

4.2 Sample of the Study

In the state of Haryana, the district Gurgaon was selected for achieving the objectives of the study on the basis of purposive sampling.

The state of Haryana was carved out as a separate state of Indian Union in 1966 from the erstwhile state of Punjab. The uniqueness of the state is that, since inception it has developed economically to a considerable extent. Besides, it has shown a remarkable progress in the field of education. Within the state, district Gurgaon was selected for the study purposely.

The study aims at estimating costs of education in the district of Gurgaon, Haryana. There are very few studies on cost aspects of education that are conducted at micro level. The few exercises on educational planning at district level indicate that district may not form a viable unit of micro level planning. Hence, this study has identified two blocks of Gurgaon district; one relatively developed educationally and socio-economically and the other underdeveloped on the same aspects. They are Sohna block (developed) and the Nuh block (underdeveloped, i.e. of Mewat region) are selected on the basis of purposive sampling to have meaningful comparison between the blocks on various components related to the objectives of study. In these blocks there are majority of Government aided schools and a very few unaided public or private schools, which are on the rise today.

In Haryana, the schools are also divided in level wise, i.e. primary schools are up to class V, upper primary schools are up to class VIII which are now upgraded to secondary level. Hence, the schools of this variety are getting less. Secondary schools are up to class X and senior secondary schools are up to class XII. The
C.D. BLOCKS SOHNA AND NUH IN GURGAON

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MAP
C.D. BLOCK SOHNA
The present study is covering all the levels of schools in both the blocks of Gurgaon district, i.e. Sohna and Nuh. Out of the total schools located in the selected blocks, 25 percent schools were taken up on simple random sampling basis from each level of schools. The total number of the schools led to 66 which are taken from both the blocks. The details of the sample schools are given below:

Table 4.1

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Type of Schools</th>
<th>Sohna</th>
<th>Nuh</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No. of Sample Schools</td>
<td>No. of Existing Schools</td>
</tr>
<tr>
<td>1</td>
<td>Primary</td>
<td>17</td>
<td>87</td>
</tr>
<tr>
<td>2</td>
<td>Middle</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>3</td>
<td>High School</td>
<td>7</td>
<td>21</td>
</tr>
<tr>
<td>4</td>
<td>Higher Sec. School</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>31</td>
<td>130</td>
</tr>
</tbody>
</table>

The list of selected schools for all the four levels taken from both the blocks of Gurgaon district is given below.

Primary Schools (I – V classes), Sohna

1. Government Boys Primary School, Sohna
2. Government Primary School, Darwaripur Hasanpur
3. Government Boys Primary School, Bhondshi
4. Government Girls Primary School, Bhondshi
5. Government Boys Primary School, Badshapur
6. Government Primary School, Raipur
7. Government Girls Primary School, Ghamdoz
8. Government Primary School, Alipur
9. Government Primary School, Dhunela
10. Government Primary School, Harinagar
11. Government Primary School, Baluda
12. Government Primary School, Karoda
13. Government Primary School, Md. Pur Meo
14. Government Girls Primary School, Sohna
15. Government Girls Primary School, Badshapur
16. Government Girls Primary School, Pahadi School, Sohna
17. Government Primary School, Ulawas
Middle School (VI – VIII Classes), Sohna
18. Government Middle School, Ulawas
19. Government Middle School, Damdama
20. Government Middle School, Silani
21. Government Girls Middle School, Gangola

High School (I – X/VI-X Classes), Sohna
22. Government Girls High School, Bhoundshi
23. Government Boys High School, Badashapur
24. Government High School, Ghamdoz
25. Government Girls High School, Ghamdoz
26. Government High School, Tikli
27. Government Girls High School, Darbaripur
28. Government High School, Ghangola

Higher/Senior Secondary School (I-XII/VI-XII Classes), Sohna
29. Government Boys Senior Secondary School, Sohna
30. Government Girls Senior Secondary School, Badshapur

Primary Schools (I – V classes), Nuh
1. Government Primary School, Dhirdhoka
2. Government Girls Primary School, Kherla
3. Government Primary School, Kanwarsika
4. Government Primary School, Roska Muo
5. Government Primary School, Udaka
6. Government Boys Primary School, Indri
7. Government Girls Primary School, Indri
8. Government Primary School, Raisika
9. Government Primary School, Baikadanda
10. Government Primary School, Attabarota
11. Government Primary School, Mahrola
12. Government Primary School, Barwa
13. Government Primary School, Badelaki
14. Government Primary School, Khorbasai
15. Government Primary School, Gajarpur
16. Government Primary School, Rupahari
17. Government Girls Primary School, Rewasan
18. Government Primary School, Kankerkheri
19. Government Primary School, Korali
20. Government Primary School, Rewasan
21. Government Primary School, Chhapara

Middle School (VI – VIII Classes), Nuh
22. Government Middle School, Jhamuwas
23. Government Middle School, Kherla
24. Government Middle School, Chandeni
25. Government Middle School, Manuwas
26. Government Middle School, Ujina

High School (I – X/VI-X Classes), Nuh
27. Government High School, Ferozepur Namak
28. Government Girls High School, Nuh
29. Government High School, Sangheil
30. Government High School, Adwar
31. Government Girls High School, Ujina
32. Government High School, Malab

Higher/Senior Secondary School (I-XII/VI-XII Classes), Sohna
33. Government Senior Secondary School, Ghaseda
34. Government Senior Secondary School, Chhapeda
35. Government Senior Secondary School, Indri

4.3 Development and Use of Tools

For collecting data on both the aspects of qualitative and quantitative, three comprehensive tools were developed by the investigator in consultation and guidance with a number of educationists, teachers, researchers and the supervisor. All these tools were administered in respective schools, villages and district/block level officials for collection of data used in the present study.
4.3.1 Procedure for development of tools

In the light of the objectives and the research questions and on the basis of the study of related literature on cost of education and performance of the school and the realities of concerning education at the village, block and district levels, I prepared three tools, at different points of time after giving lot of thinking and re-thinking to different requirements of the study and the relevant points emerged out were incorporated in each tool. After giving some cooling time I reviewed the items in each tool separately and made initial improvements. These tools were taken to ten different experts in educational finance in NIEPA, NCERT and Planning Commission with the request that in the light of the objectives and questions of the proposed study, they should go through the tools and advise changes, improvements, addition, deletion, etc. in them in case of the need. The experts were able to give very meaningful suggestions which were incorporated in the draft tools and the tools were revised accordingly. These tools were then shown to six educational administrators of considerable length of experience in the state department of education dealing with school education and finance sector. Then also the tools were discussed with five randomly selected Sarpanchs and five school headmasters in order to ensure that the tools will be able to evince the response to various items in the tools as required and each respective tool will be able to gather all the desired information. Discussions with the administrators, Sarpanchs and headmasters helped in further fine tuning these tools. Thereafter the tools were finally printed for their administration. Though these tools were made in English at the time of their finalization with the educational administrators, Sarpanchs and headmasters and also at the time of their actual administration on the sample population these were translated into Hindi for the convenience and proper understanding of the respondents.

4.3.2 Description of tools

The description of these tools is given below:

Tool –I: School Schedule

After the final schedule was prepared, this was administered in each sample school. The financial data and the academic performance data were obtained from
the school records. The investigator filled up the schedules after going to each sample school personally. The aspects covered by this schedule are as follows:

1) Items included in the schedule covered general information about the school such as: type of management, information regarding enrolment, retention, marks and grades secured and details of the various fees/funds collected were, also part of this schedule.

2) Institutional cost which includes both recurring and non-recurring expenditure.

3) Students' academic performance of the school.

4) Infrastructural facilities which include building and its location, its adequacy and suitability, library and laboratory facilities, toilet and drinking water facilities, student-teacher ratio, co-curricular activities, etc.

5) This schedule also contains various information, which help to calculate the cost of education and academic achievement at micro level from collected from the headmasters and principals of selected schools. School schedule was completed with the help of the head of the schools has helped in collecting data that has assisted in analyzing the unit cost and also the performance of institutions.

The tool may be seen at Appendix – I.

**Tool –II : Village Schedule**

The Village Schedules were filled up by the investigator personally from the villages of the sample schools taken for the study. This tool was administered on village Pradhan/Sarpanch in order to collect the meaningful data relating to the following aspects:

1) General information on population, working population, literature population, unemployed and educated unemployed of the village.

2) Expenditure on education and the academic and over all performance of the students.
3) Socio-economic status of village.

4) Occupational trend and income level of parents.

5) Availability of local resources, i.e., human and physical which can be utilized effectively in educational development of that area.

The village schedules were completed with the help of the Sarpanch/Village Pradhan which has helped in collecting data and finally that has assisted in analyzing the same.

This tool may be seen at Appendix - II

**Tool –III: District/Block Schedule**

This schedule was administered on the sampled district and block level education authorities. This includes the district of Gurgaon and its two blocks, namely, SOHNA and NUH for the current study.

The aggregate financial data were obtained from the accounts branch of the Directorate of Education, Office of DEO (District Education Officer), Office of SDEO (Sub-Divisional Education Officer), Office of the DPEO (District Primary Education Officer), Office of the BEO (Block Education Officer) and Office of the BDO (Block Development Officer). The schedules were filled up by the investigator himself. The aspects covered by this schedule are as under:

1) Three years (year-wise) aggregate and component wise financial data were collected at the district and block level, it includes the income and expenditure details.

2) The school level expenditure on different head was also noted down.

3) Grants received by the district and block level offices were also evaluated.

4) The information on infrastructural facilities available and provided was also collected.
The district schedules were completed with the help of the District and Block Level Officials which has helped in collecting data on expenditure and finally that has assisted in analyzing the data.

This tool may be seen at Appendix - III

4.4 Procedures of Data Collection

A research study in social science can be conducted by including field studies, observational studies, empirical/experimental studies and perception studies. The current study is essentially an empirical one.

As it has been pointed out earlier, the universe of the study is limited to two blocks of Gurgaon district of Haryana, i.e., Sohna block and Nuh block, is analyzing the institutional cost and efficiency of schools at various levels.

For a systematic study, data from both primary and secondary sources was tapped. These sources include various relevant reports of DPI, Chandigarh, financial estimates as well as annual accounts of both the blocks, books, journals, articles, reports and various related literatures on the subject. Focused group discussions was held with one to one and interviews were taken from many teachers, educational administrators, educational economists and policy makers at national/state level and other concerned officials of both blocks and the district. Questionnaires of three types were also filled up. The study is mainly undertaken empirically. However, both the qualitative and quantitative analyses are attempted.

For the institutional cost analysis, three different and consecutive years from 1997-98 to 1999-2000 have been covered to bring about a balanced picture, averaging out fluctuations in teaching staff, student strength and their performance etc. and presenting the cost trends over the years at the same time. There are however, specific reasons behind selecting these three years for calculating the institutional costs. Firstly, quite logically, the years 1997-98 to 1999-2000 are the three latest years included in the study as this is end of the twentieth Century where privatization and globalization has been playing an important role. Secondly, completely audited accounts along with other relevant data were available for these three years in both the blocks of Gurgaon district. Therefore, quite rationally certain
recent years had to be included in the study keeping the contextual relevance in view. And naturally, only those years could be considered, for which properly audited data were available as un-audited data of public institutions are not considered to be reliable and also these institutions feel extremely reluctant to part with such un-audited data.

As the financial year ends on 31st March, for all practical purposes the expenditure for the year ending on 31st March can be reckoned as the representation of expenditure for the whole year. There may be some demerits in having such an approach but one can do precious little as the modern accounting system is only designed in this fashion.

The following procedure was adopted for collecting data:

The investigator personally approached the Headmasters/Principals each school included in the sample in order to collect the data. Excepting two school Principals who were initially quite skeptical about the study and its implications, the rest warmly cooperated in collecting the data and information right away. The district and block level officials were also approached and required data were collected. The village Pradhan/Sarpanch were also met by the investigator and got the needed data.

1) For Tool – I (School Schedule)

The data on this tool was collected by the researcher by approaching to all Headmasters/Principals of the sample schools. The investigator filled up the total schedules by taking the help of the Headmasters/ Principals and other teachers by using the school records of the three years, i.e., from 1997-98 to 1999-2000. The exercise was completed in five months. The data were analysed and interpreted subsequently.

2) For Tool – II (Village Schedule)

Here also the Village Pradhan and Sarpanch were contacted by the researcher and got responses properly which helped to fill up the tools as per the objectives of the study. The analysis and interpretation of data were done simultaneously.
3) **For Tool -III (District/Block Schedule)**

The information on this schedule was collected by the researcher personally after meeting the concerned district and block level officials in two phases. During first phase, the investigator met the officials briefed them about the study and the required data and also collected some of the basic and raw data on income and expenditure statement. During the second phase only the researcher could manage to collect the essential information and data needed sufficiently for the present study.

4.5 **Measurement of Variables**

Measurement of different variables like income, expenditure, cost of education and school performance was done in the following manner.

4.5.1 **Measurement of educational cost**

Two basic approaches have been adopted to broadly classify educational cost in to different categories. First approach seeks to classify costs on the basis of dichotomy in public and private ownership of resources used-up in production, where as second approach is based on the distinction between institutional and individual source and ownership of resources used up in production. Classification of cost as social and private cost is based on the first approach, where as second approach distinguishes between institutional and individual cost. Costs may also be distinguished on the basis of nominal and real measurement. In other words, costs of education in most economies are incurred at two domains: the private and the public domains, which may also respectively be referred to as individual and institutional domain (Majumdar, 1983). Costs of education incurred at individual domain include costs on education incurred by the pupils and by their parents or guardians, such as on books, stationary, fees, hostel, uniforms, transport, etc. The institutional costs of education is also known as cost of supply of education, mainly include the recurring costs, e.g. expenditure on teachers’ and non-teaching staff’s salaries, scholarships, stipends, etc. and the non-recurring costs which include expenditure on purchase of land, buildings, furniture, equipments, etc. The sum of the costs of education incurred at the individual and the institutional domains, net of transfer such as fees, scholarships and stipends given the social costs of education. A total and unit cost of three years was taken as a measure of cost of education.
4.5.2 Measurement of school performance

The school performance, though, may include the performance put up by its students in different curricular and co-curricular activities, yet, in this study only the performance of students in the Secondary School Certificate Examination and Senior Secondary School Certificate Examination conducted by the Haryana State Board have been taken into account. The results of public examination for the classes V and VIII were also taken care while calculating the school performance. The students' performance in this external examination in the last three years was collected from each school. A mean of three years pass percentages and percentage of first division was taken as a measure of school performance. For the remaining classes the results of annual test was considered.

4.6 Statistical Treatment of Data

Initially, the collected data of three schedules were checked for the detection of inconsistencies and inaccuracies. The data were classified into appropriate categories by eliminating non-essential details through aggregations. Then data were tabulated in such a way as to conform to the basic objectives of sampling in general and the current study in particular. After proper classification and tabulation, some simple statistical/econometric techniques like percentages, mean, standard deviation, ANOVA, Chi-Square ($\chi^2$) of all variables have been computed to analyse the data in the light of the objectives of the current study. Cross tabs matrix is prepared for each and every variable to study the relationship between the variables together. The hypotheses of the study have been tested by applying ‘F’ test.

Three analysis cards had been prepared because of the three different types of sample. First card was related to schools, second card to Village Pradhan/Sarpanch and third card to District/Block authorities.

A detailed analysis of these cards is given below:

Card 1: This card is related to school as sample. The data on Tool-I have been posted in this card. The card data was fed in computer for computing ANOVA, value of mean and standard deviation. The analysis and interpretation of this card is given in Chapter V.
The data on financial aspects have been studied in terms of rupees per annum. The data of on students enrolments, students appeared in final board examination, secured first, second, third divisions, compartmental, failed, periods per week for teachers at various levels and grades, books availability, book issued, number of working days in a year, various expenditures, awards, examination tests, etc. have been presented in terms of number. Total area of school building and covered area have been described in square meters. Scores have been assigned as 1 and 2 to different alternative option/reply to the mentioned series of questions in the schedule. Weightages have been assigned as 1 to good, 2 to minor repair, 3 to major repair and 4 to dilapidated for certain variables of infrastructure and facilities like classrooms, labs, library, office accommodation, auditorium, drinking water taps, toilets, etc. To analyse the data properly in computer the answers have been coded in numbers. The answers are coded through one to ‘Yes’ and two to ‘No’. This card also contains the analysis of teachers’ opinion on increased retention of the students in the school and various problems the school facing to improve the education system. The values of mean and standard deviation have been used for testing the hypotheses where ‘F’ tests are applied. These tests are presented in Chapter - V.

**Card - II:** The card is related to Village Pradhan/Sarpanch of the village as sample. The data on Tool-II have been posted in this card. The variables on total population, working population and literate population have been presented in thousand per year. The unemployed and educated unemployed population is presented in percentages. The type of occupation of the working class population are assigned weightage as 1 for farming, 2 for daily labour, 3 for government jobs, 4 for private jobs, 5 for self employed and 6 for any other. The answers to the opinion on educational scenario of the village are assigned weight age as 1 for yes and 2 for no. The variable of the nature of contribution of the villagers to the village education is assigned weightage as 1 for teaching formal/non-formal classes, 2 for helping in construction of physical facilities, 3 for donating through cash/kind, 4 for providing manual labour, 5 for motivating the parents and children to join the system and 6 for any other method to help the system to improve. Provision of taking the independent opinion from the VEC is also there. The ANOVA, mean and standard deviation with the help of computer have been found out. Separate tables for ANOVA and mean
with standard deviation values are prepared and described in Chapter - V. The 'F' values have also been used for testing hypotheses.

Card –III: This card is related to District and Block level officials of education department as sample. The data on Tool-III have been posted in this card.

The data on financial aspects have been studied in terms of rupees per annum for a period of three years. Moreover, the financial state of income received per annum is taken into consideration. The details of three years recurring and on recurring expenditure on different heads is also presented in terms of rupees. The analysis and interpretation on these aspects is presented in Chapter - V.