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E: ISSN NO.: 2455-0817 *Remarking An Analisation*

A Comparative Study of the Teaching-Learning Environment of the Science Subjects in CBSE & RBSE Schools in Rajasthan

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Abstract

Bordered by Bharatpur district of Rajasthan and Uttar Pradesh to the north, Madhya Pradesh to the south, Karauli district to the west and Uttar Pradesh and Madhya Pradesh to the east. Dholpur lies between Agra in Uttar Pradesh and Morena in Madhya Pradesh, and is known for the mixed culture of both the states. Though considered one of the backward districts of Rajasthan, it acclaims to be one of the most popular districts of the state in terms of its historical heritage that can be seen through its forts, fortresses, ancient temples etc., its forest sanctuary which is visited by the tourists from all the corners of the world, its thermal power station, sand stone, Rajasthan Explosive Corporation Ltd., and for its glass factory. Owing to several monuments of historical significance erected here, the historians and scholars keep visiting it from time-to-time to satisfy their curiosity. Educationally speaking, Dholpur is only moderate. Its schools, colleges, teaching methods used in the various institutions, teaching aids, available infrastructure etc. reveal it. However, as it is known, trends keep changing from time–to-time, the new educational trends are occurring in the Dholpur district too. Study of Science subjects, such as, Chemistry, Physics, Maths, Biology, Botany, Zoology etc. has always been a passion to the students. With the arrival of the twenty first century, the craze for the study of science subjects has increased incredibly.

Conducted on 300 units selected randomly from 1 CBSE School, 2 Hindi medium RBSE Schools and 2 English medium RBSE Schools, the research paper is an empirical study and it highlights a comparison between the teaching-learning environment of the science subjects in CBSE and RBSE schools in Dholpur. The paper covers all the imaginable aspects associated with the teaching and learning of the various science subjects

Keywords: Infrastructure, Equipped Labs, CBSE, RBSE, CISCE, Refresher Course, Basic Facilities, Career-Oriented, Ongoing Trends, Scientific Approach

Introduction

Education is the process of instruction aimed at the all round development of boys and girls. Education dispels ignorance. It is the only wealth that cannot be robbed. Learning includes the moral values and the improvement of character and the methods to increase the strength of mind. There are 33 different educational boards in the country, including the Central Board of Secondary Education (CBSE), Council for the Indian School Certificate Examinations (CISCE) which is the umbrella for ICSE and ISC and the various State Educational Boards.

Educationally speaking, Dholpur is only moderate. Its schools, colleges, teaching methods used in the various institutions, teaching aids, available infrastructure etc. reveal it. However, as it is known, trends keep changing from time–to-time, the new educational trends are occurring in the Dholpur district too. The fast growing number of pre-nursery and nursery schools reveals an absolutely unimagined and unpractised educational scenario. As in other cities of India, the parents like to send their children to the pre-nursery and nursery schools with a hope that these schools are definitely going to contribute something to the all-round development of their children's personality. This trend is seen not only in the urban areas but also in the rural areas. Now the parents of different

castes, religions, cultures and educational backgrounds wish their children to join some good school for the sake of their healthy socialization.

In the Dholpur district, in addition to several private and government schools affiliated to Rajasthan Board of Secondary Education (RBSE), there are- Military School which has produced several great scholars so far since it was opened, Jawahar Navodaya Vidyalaya and three CBSE Schools, of which two are in Dholpur city and one is in Mania. The educational enhancement can be noticed in the fact that in all these Senior Secondary Schools in the district, the enrolment of the students, and particularly of the girls is increasing fast day-by-day. Probably, it is so that now the value and importance of education is known to all.

The increasing enrolment of the students in the various government schools witnesses the people's awareness to the value of education. Today even the poorest of the poor parents want their sons and daughters to attend schools so that they can build up some good career. The government schemes of scholarships, free uniform, free books, free bicycles and mid-day meals are contributing tremendously to it. Obviously, now the government schools in the district guarantee a better environment. Hence, considering it a demand of time, the parents are mentally prepared to send their wards to schools.

The contribution of the private schools to the field of education is also remarkable. Children are the first priority of the parents. They know that it is only through good education that something can be achieved, and that future can be made safe. Since all the parents wish their wards to have safe future and career, they are ready to bear the expenses of the private schools. Probably, they find the private schools with a better infrastructure, staff and educational environment, and that is why, they spend a lot of money on the education of their wards in the private schools.

Objectives of the Study

The study was made with the following objectives:

1. To observe, visit and study the various Hindi medium RBSE senior secondary schools in Dholpur.
2. To observe, visit and study the various English medium RBSE senior secondary schools in Dholpur.
3. To observe, visit and study the various CBSE senior secondary schools in Dholpur.
4. To attempt to make a comparison between the academic environment in the CBSE schools and in the RBSE schools.
5. To attempt to make a comparison between the academic environment in the RBSE Hindi medium and the English medium schools.
6. To observe and interpret the educational environment in the various senior secondary schools in Rajasthan.
7. To study the infrastructure facilities being provided to the students, and particularly to the science students.
8. To explore and analyze the number of students in the schools, and to find out the percentage of the students who have offered Science subjects at the senior secondary level.
9. To be familiar with the causes of the growing interest of the students in Science subjects at the senior secondary level through the students, teachers, parents and family members, and through the inhabitants of the various localities in Dholpur.
10. To study and analyze the teacher-student ratio in the selected schools
11. To learn through the students about the fields that they want to join as a result of their study of the science subjects.
12. To learn about the result of the Science students of the previous ten years in the school.
13. To find out about the socio-cultural and educational background of the science students.
14. To analyze the cause and effect relationship of the students' bent of mind to the study of the science subjects at the senior secondary level.

Review of Literature

Nayyar A.H.Dawn (2016) comments that teaching science requires special attention and special training of teachers in teaching methods that invoke reasoning and curiosity. It also requires laboratory equipment to let students explore and verify phenomena and learn methods of scientific inquiry. It requires textbooks that make scientific phenomena understandable through systematic exploration. End-chapter exercises in textbooks must not ask recall questions, but demand thinking, reasoning and analysis. The same is true for examinations.

Commission on Architecture and the Built Environment. (2002) generalizes that while the building alone does not make a 21st century school, common sense suggests that the qualities of where we learn affect the quality of how we learn. Georgetown University researchers, for instance, have found that improving a school's physical environment can increase test scores by up to 11%.

Cornell, P. (2002) finds that learning environments are the structures, tools, and communities that inspire students and educators to attain the knowledge and skills the 21st century demands of us all. Experts say 21st century learning must take place in contexts that "promote interaction and a sense of community [that] enable formal and informal learning."

Shafqat Hussain1, Saeed Anwar2, Muhammad Iqbal Majoka2. January (2011), in their studyindicated that peer group"s activity-based learning was more effective for teaching of physics as compared to traditional lecture method of teaching at secondary level.

Hypothesis

1. Though a backward district of Rajasthan situated between Uttar Pradesh and Madhya Pradesh, Dholpur is a hub of education where the various educational institutes are magnetically drawing the students from far and wide every day to study here in order to build up their career.

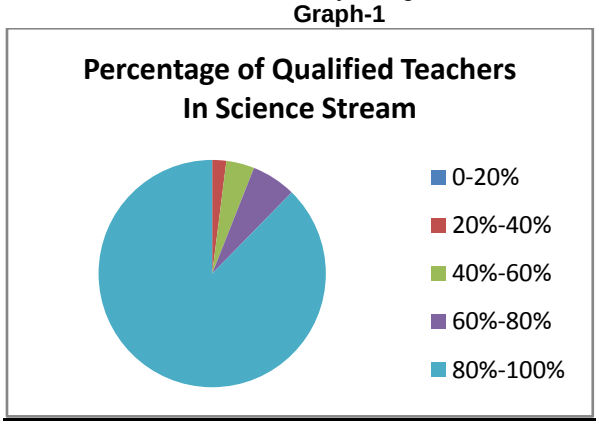
2. In Dholpur, there are several private and government senior secondary schools which are joined by thousands of rural and urban students for the sake of the study of the science subjects.
3. Most of the schools are RBSE affiliated while a few of them are CBSE affiliated
4. The teaching and learning environment in the CBSE schools is more or less different from that in the RBSE schools
5. There are both the Hindi medium and the English medium RBSE schools
6. Most of the schools in Dholpur lack basic infrastructure facilities required for the study of science subjects.
7. The classrooms of the science subjects are over-crowded.
8. The teacher-student ratio in such schools is not proper, and it requires improvement.
9. The refresher courses need to be organized for the science teachers in order to update them with the current ongoing trends in the subjects
10. The teachers of the various science subjects are not sent for the refresher courses.
11. The senior secondary schools in Dholpur lack a conducive teaching environment because of the various government schemes and other reasons.
12. The CBSE schools provide a better educational and academic environment than the RBSE schools

Research Methodology

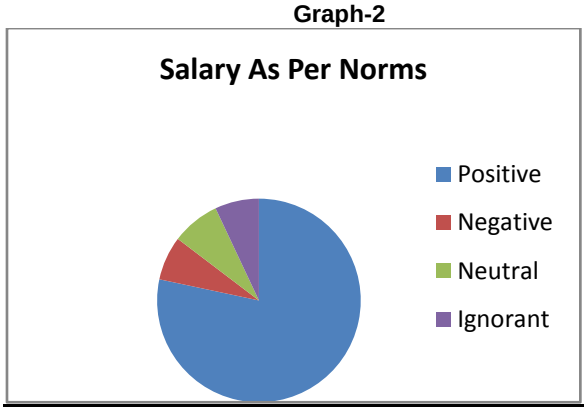
The study was conducted on 300 units associated with the five government and private senior secondary CBSE and RBSE schools with the facility of Science subjects. The units of information from which the primary data were collected include students, teachers, parents and guardians of the students, Principals, ministerial staff, members of the management and administration. For the purpose both the primary and the secondary data were used. The tool which was adopted to collect the primary data was schedule with more than 70 questions covering several aspects of the problem. In order to keep up the scientific spirit, observation method was used. The researcher individually observed the conditions under which the students of Science stream study and the teachers teach the various science subjects. Not only this, she also visited the labs and observed herself the various laboratories and the equipments in them. Besides it, some of the persons associated with the specified schools, were interviewed. The mode of sampling was random and stratified. The schools were selected in a stratified way, while the units of information were selected randomly.

In order to keep up the scientific spirit of the study, all the steps of research prescribed by the various social scientists,were observed. The conduction of research included review of literature, formation of hypothesis about the problem, selection of the study area of the five varied schools, random selection of the units of information for the purpose of the collection of the primary data, selection of the tool named schedule, pre-testing of the schedule, collection, classification, analysis, interpretation, tabulation of the data, and finally, the generalization.

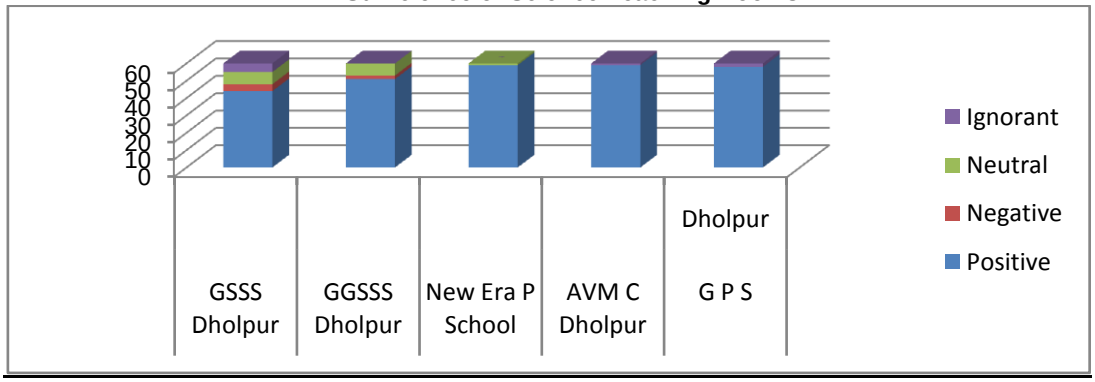
Graph-1



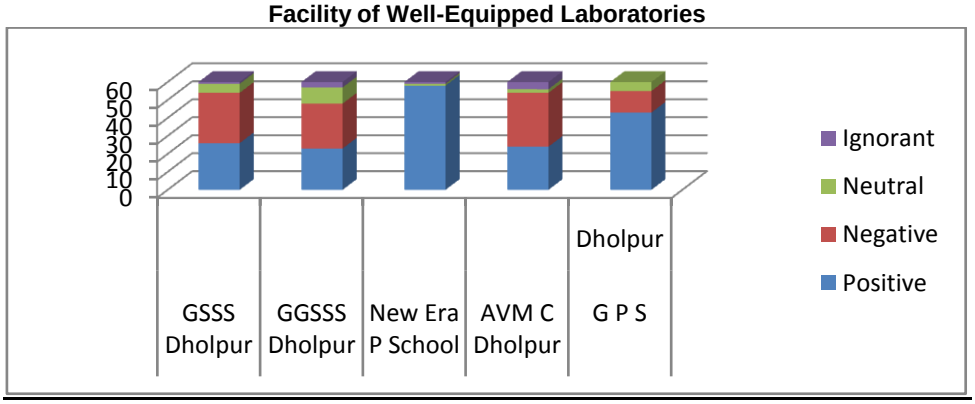
Graph-2



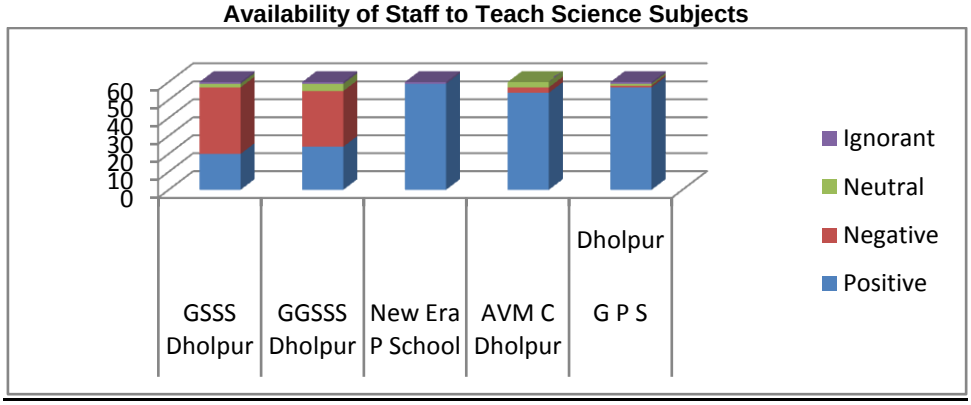
Graph-3
Sufficience of Science Teaching Rooms



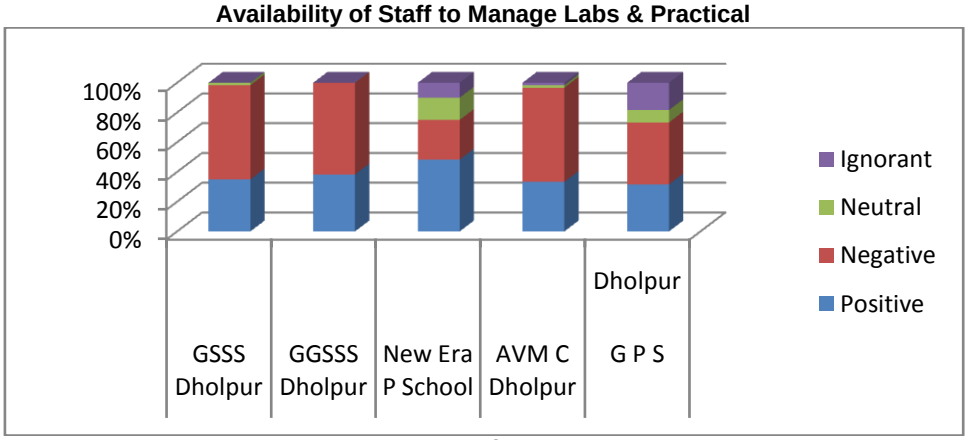
Graph-4
Facility of Well-Equipped Laboratories



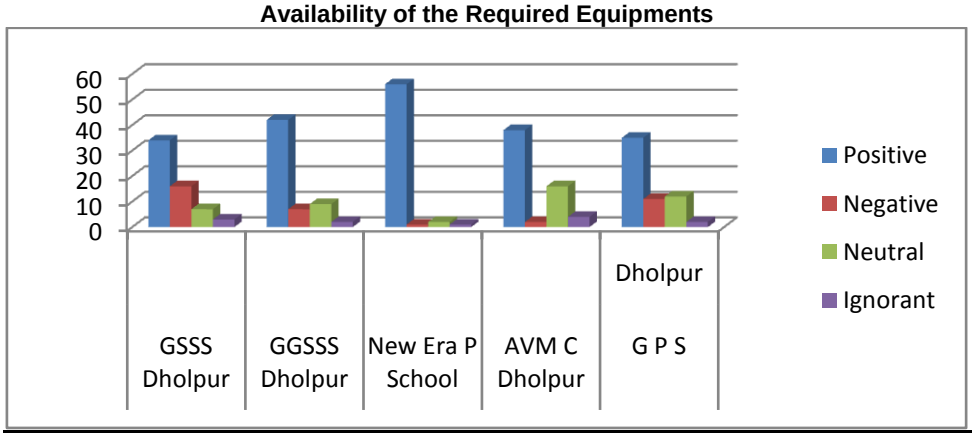
Graph-5
Availability of Staff to Teach Science Subjects



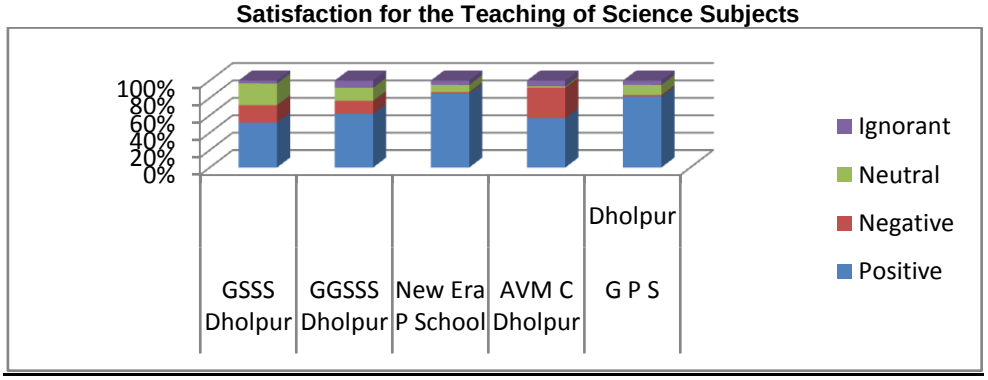
Graph-6
Availability of Staff to Manage Labs & Practical



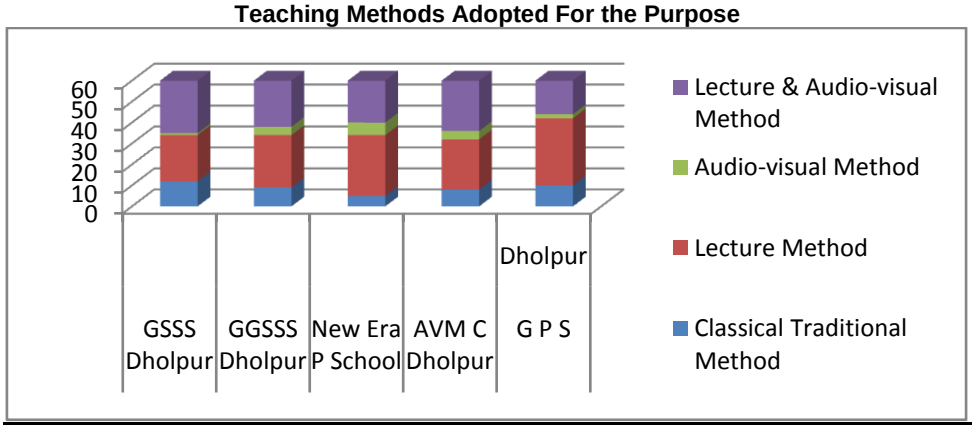
Graph-7
Availability of the Required Equipments



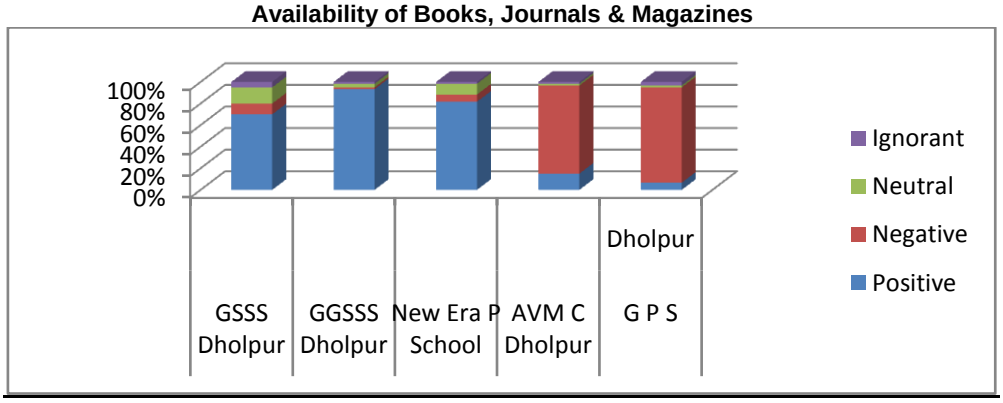
Graph-8
Satisfaction for the Teaching of Science Subjects



Graph-9
Teaching Methods Adopted For the Purpose



Graph-10
Availability of Books, Journals & Magazines



Key Findings

1. At present Dholpur is an education hub with the Military School, Jawahar Navodaya Vidyalaya, and three other CBSE schools.
2. There are 162 government schools in the Dholpur district where the facility of Arts, Commerce, Science and Agriculture is available.
3. The number of the Government Senior Secondary Schools is less than the number of the private senior secondary schools in the district.
4. The number of the private schools is greater than the government schools both in the urban and the rural area in the district.
5. In the urban area, Dholpur city has the highest number of Government and Private Senior Secondary Schools (3 and 27 schools respectively).
6. The lowest number of Government and Private Senior Secondary Schools is in Rajakhera in urban area (2 and 5 schools respectively).
7. In the rural area of the district, Baseri block has the highest number of Government and Private Senior Secondary Schools (34 and 21 schools respectively).
8. In the rural area, Dholpur block has the lowest number of Government and Private Senior Secondary Schools (28 and 6 schools respectively).
9. In the urban area in Dholpur district, Dholpur has the highest number of Government and Private Senior Secondary Schools with the facility of Science stream (2 and 21 schools respectively).
10. In the urban area in Dholpur district, Rajakhera has the lowest number of Government and

Private Senior Secondary Schools with the facility of Science Stream (1 and 5 schools respectively).

11. In the rural area in Dholpur district, Saipau block has the highest Government and Private Senior Secondary Schools with the facility of Science Stream in them (7 and 9 schools respectively).
12. In the rural area, Bari block has the lowest number of Government and Private Senior Secondary Schools (3 and 0 schools respectively).
13. The highest enrolment of the students in Science Stream in Dholpur district is in Dholpur Block (Total 875 students).
14. The lowest enrolment (136) is in Rajakhera Block.
15. The highest number of enrolled boys and girls in Science Stream is in Dholpur Block (595 and 280 respectively).
16. The lowest number of the enrolled boys and girls in Science Stream is in Rajakhera Block (102 and 34 respectively).
17. There are qualified teachers to teach the Science students in the schools that provide the facility of teaching Science subjects (91% units).
18. 80%-100% Science teachers are qualified in the study area (88% units).
19. The teachers in the selected schools are paid the salary as per the government norms (78% units0.
20. The most preferred stream in the study area is the Science stream (69% units).
21. Science stream is preferred most because it is good for career (55% units).
22. 80%-100% students in the selected five schools in Dholpur district are in the Science stream.
23. 80%-100% of the total Science students in the study area are boys (34% units).
24. The percentage of the girls in Science stream is only from 20%-40% (49% units).
25. The number of Science teaching rooms in the schools selected for the purpose is sufficient (90% units).
26. Facility of well-equipped laboratories is there in the schools (58% units).
27. Teachers are available to teach all the Science subjects (71% units).
28. Sufficient staff is not available to manage practical labs and to conduct the practicals (51% units).
29. Chemicals and equipments required for conducting practicals are not available (55% units).
30. Equipments required for the practicals of Physics are available (69% units).
31. Equipments required for the practicals of Biology are available and not available (46% and 40% units respectively).
32. Equipments required for the practicals of Chemistry are not available (51% units).
33. The units randomly selected from the specified five schools of Dholpur city are satisfied, and are not satisfied with the teaching of Science subjects (67% and 15% units respectively).
34. Classrooms are both and small, and not entirely modern and well-equipped (65% units).
35. Lecture and Lecture-cum-audio visual methods are used in the specified schools (44% and 35% units respectively).
36. Regular class tests are not conducted for the Science students in the specified study area (65% units).
37. Tests for the Science students in the specified five schools are conducted only randomly (40% units).
38. Regular tests for the Science students are not conducted because the syllabus is too wide (55% units) and the students do not take the tests seriously (38% units).
39. The Science students in the specified study area familiar and unfamiliar with the ongoing trends in the field of Science (52% and 36% units respectively).
40. The Science students in the specified selected schools for the purpose are made familiar with the ongoing trends in the field of Science through books and magazines (67% units).
41. Books, journals, magazines and reference books are available and not available for the Science students in the library (53% and 38% units respectively).
42. Remedial classes for the weak Science students in the schools are not conducted (62% units).
43. There are particular periods for the library reading in the schools of the study area (51% units).
44. The Science students studying in the selected schools are competent and incompetent to understand Science (68% and 17% respectively).
45. Competence to understand Science subjects is developed in the students through teaching and practicals (64% units).
46. Low mental level of the students and unavailability of staff to teach the Science subjects are the causes of the students' incompetence (54% and 14% units respectively).
47. The percentage of the competent students in the Science stream in the specified schools is only 40%-60% (37% units).
48. The percentage of the Science students facing difficulty in understanding the subjects is 20%-40% (38% units).
49. Only 20%-40% of the total students in the study area find Physics easy (74% units)
50. All the Science students in the specified study area face difficulty in the understanding of Physics (54% units).
51. All the Biology students in the study area find Biology easy (59% units).
52. Only 0-20% Bio Students face difficulty in the understanding of Biology (85% units).
53. 80%-100% of the Science students find Chemistry easy (45% units).
54. Only 0-20% Students face difficulty in the understanding of Chemistry (56% units).
55. Only 20%-40% of the Science students find Mathematics easy (72% units).
56. All the students face difficulty in the understanding of Mathematics (63% units).

57. In the schools selected for the study, the most popular subject is Physics, Chemistry and Biology (47% units).
58. Biology is the easiest Science subject (34%).
59. Physics is the most difficult subject (84% units).
60. Frequent teaching of the same topic is the scheme in the schools to facilitate the teaching of the difficult subjects (40% units).
61. There is an arrangement of separate labs for all the Science subjects (90% units).
62. Regular conduction of practicals is made in the schools (72% units).
63. Practicals for various practical subjects are conducted twice a week (55% units).
64. WIFI facility in the school is available and unavailable (56% and 41% units respectively).
65. White Board, marker and Board wiper are the teaching aids that are used most in the specified schools (59% units).
66. The most approved teaching aid for the Science subjects at present is computer and internet (33% units).
67. Chemicals are the most important things for the teaching of Chemistry (31% units).
68. White Board, marker and board wiper are the most useful teaching aids for the teaching of Biology in the schools (27% units).
69. Despite several problems, the science students in the specified study area are satisfied because in the schools they are taught by the qualified teachers (68% units).
70. The teachers in the specified schools selected for the study are satisfied because they are able to create a competitive environment (32% units).
71. The students are dissatisfied because sometimes they fail to have qualified teachers for teaching, and are taught by the non-qualified teachers (55% units).
72. The standard of the students causes dissatisfaction to the teachers (63% units).
73. The Science teaching environment can be enhanced through WIFI facility, modern teaching aids, competent and qualified faculty, PPT mode of presentation, more and more practicals and linking of the syllabus with the competitive exams.
74. Examinations demand memorisation, so that students have no reason to understand and internalise the subject matter.
75. Laboratory facilities are not available except in private elite schools or a few well-looked-after public schools.
76. In most public schools, where lab equipment exists, students are not allowed to handle it for fear of causing damage, and the equipment is used by teachers to only demonstrate experiments to the students.
77. Teaching science requires special attention and special training of teachers in teaching methods that invoke reasoning and curiosity. It also requires laboratory equipment to let students explore and verify phenomena and learn methods of scientific inquiry, but nothing was found.
78. The issue of the medium of instruction in science education is a complex one. Concepts and their explanations can be best conveyed and received in an easily understood language, but they are mostly in English or typical Hindi that is beyond the understanding of an average student.
79. Teaching science and mathematics in English to those students who do not understand the language is tantamount to denying them the means to understand and hence enjoy learning these subjects. It also amounts to forcing them to memorise the text.
80. In most of the cases, the science students are found memorizing the text.

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