

**ANALYSIS OF TEACHERS' PERCEPTIONS ABOUT EFFECTIVE PHYSICAL SCIENCE
TEACHING – LEARNING**

Prakash H S Off campus Part-time Research Scholar in Education, Dravidian University, Kuppam,
A.P. Email Id- prakashhshce@gmail.com

Dr. Geetha S Research Supervisor, Rtd. Professor and Principal, Hasanamba College of Education,
Hassan. Karnataka Email Id – geethasjayram12@gmail.com

ABSTRACT

The purpose of Physical Science teaching in secondary schools is to enable the students to grasp systematically the basic knowledge of Physics and Chemistry needed for the further study of modern science and technology and to understand its applications. The study conducted an appraisal of Physical Science classroom transactions in different types of schools in two different Government and Aided. It is needless to say that such a probe into teaching-learning processes with respect to (i) Teacher Preferences for effective Physical Science Teaching, (ii) Training Strategies for Physical Science Teachers and (iii) Teachers perceptions on Physical Science Laboratory. would definitely throw light on the impact of Physical Science teaching on the learning outcomes of the students.

This comprehensive study would definitely yield educational implications for revitalizing the existing Physical Science curriculum of secondary school, improving its content and sequence to reduce the miss-match between the student and the curricular demand if necessary, adding to its potential and raising its overall quality. In all a sample of 40 teachers, 20 teachers from Aided school and 20 teachers from Government school have been considered. Good physical science teacher creates interest in learners to learn physical science and encourages them to involve more in learning it. Physical science teacher has to provide many learning activities through the use of laboratory and other materials to stimulate favorable development of scientific attitude.

Keywords: Teachers Perception, effective physical science, teaching - learning.

INTRODUCTION

The Indian Education Commission (1964-66) has suggested the aims and ideas of teaching science at various levels. The recommendations for science teaching at Secondary stage are, at the secondary stage science should be taught as a discipline of the mind and preparation of higher education. At the lower secondary level physics, chemistry, biology and earth sciences

should be taught as compulsory subjects, and at the higher secondary stage there should be diversification of courses and provision of specialization.

The importance of science education in the modern world cannot be over emphasized. Science is an intensely human, intensely creative, enterprise. It dominates our lives and presents us with tremendous opportunities and challenges because there is no area untouched by it. The evidence of the correlation between science and technology and economic or industrial development is over whelming. Science discovers new knowledge and technology utilizes this new knowledge to produce better and more useful materials that make living easier and safer. When technology is applied in industries and other areas pivotal to a country's progress, even poor feudal type economies can be transformed into industrial and economic power houses. Countries like China and Europe are one of the many countries that have only science to thank for their incredible growth and development. Therefore, a sound understanding of science and its power is crucial for all.

At the individual level, a person's understanding of science enables him to make the right life choices and deal effectively with his surroundings. The world we live in is a highly technological world and it is imperative that each individual be enabled to survive in such a world. His or her view of the world, ability to make use of new technology in private and professional life as well as appreciation of healthy living are all shaped by scientific knowledge. Science education not only helps the individual to adapt well but also enables him to understand his own impact on his environment and thus inspires him to live responsibly.

OBJECTIVES OF THE STUDY

- To evaluate the teachers perception on effective physical science teaching-learning.
- To compare the government and aided school teachers perception on effective physical science teaching-learning.
- To analyze the teachers perception on effective physical science teaching-learning.

RESEARCH METHODOLOGY

The present study is descriptive – analytical one seeking to study to analyze the quality of Physical Science Teaching – Learning in secondary schools. This study aimed to analyze the perceptions on effective Physical science teaching learning. In all a sample of 40 teachers, 20 teachers from Aided school and 20 teachers from Government school have been considered. The teachers have indicated their response towards the Structured Interview.

TOOLS FOR THE COLLECTION OF DATA

- To collect data on Physical Science Classroom experiences – Structured Interview for science teachers used.

DATA ANALYSIS

Teacher Perceptions on effective Physical Science Teaching - Learning with regard to different aspects contributing to effective classroom. This shows their perception on prominent aspects of Physical Science Teaching like physical science textbook, physical science laboratory and other related materials, classroom interactions and interest of learners.

I Teacher Preferences for effective Physical Science Teaching

Table 1: Percentage of Teacher Preferences for effective Physical Science Teaching

Sl.No	Items	Preferences						
		I	II	III	IV	V	VI	Total
1	Physical Science Textbook	55	27	7	4	5	2	100
2	Well equipped laboratory	40	36	6	9	4	5	100
3	Improvised Learning Materials	2	20	44	24	4	6	100
4	Special Training sessions	5	9	20	18	10	38	100
5	Questioning in Class	42	10	20	7	15	6	100
6	Learners Interest	30	20	15	14	10	11	100

The following observations are clear from table 1,

- 55% of Physical science teachers have opted first preference as good ‘Physical Science Textbook’.
- 40 % of Physical science teachers have opted first preference as regarding ‘well equipped laboratory’.
- 44 % of Physical science teachers have opted third preference as regarding ‘Improvised Learning Materials’.
- Only 5 % of Physical science teachers have opted as first preference as regarding ‘Special Training sessions’, but majorities 38% have given sixth preference.
- 42% of Physical science teachers have opted ‘Questioning in Class’ as their first preference.
- 30% of Physical science teachers have opted ‘Learners Interest’ as their first preference.

II. Training Strategies for Physical Science Teachers

Quality of Physical Science education is not only depends on the qualification of Physical Science teacher. It also on the quality of in - service training. Programmes like Preparation of Question Bank, Attending Workshop, Refresher Course, Orientation Programme, Science Quiz and Preparation of Learning Aids are means to improve the quality of Physical science teaching.

Table 2: Training Strategies for Physical Science Teachers

Sl.No	Training Strategies	Type of School	
		Government (N=20)	Aided (N=20)
1	Preparation of Question Bank	52	64
2	Attending Workshop	35	70
3	Refresher Course	47	55
4	Orientation Programme	51	44
5	Science Quiz	58	42
6	Preparation of Learning Aids	46	45
Total		48	53

The following points are clear from table 2,

- Mean % of Aided (53%) is higher than Government (48%) reveals that Aided school teachers have taken the advantage of attending various training programmes.
- 70% of teachers from Aided school have attended training in ‘Preparation of Question Bank’ while only 35% of Government school teachers attended such training. Same trend observed in ‘Attending Workshop’ where Aided school teachers (70%) are better than Government school teachers (35%).
- Aided school teachers (55%) are higher percentage in attending ‘Refresher Course’ as compared to only (47%) of Government school teachers.
- Government school teachers (51%) are higher than Aided school teachers (44%) regarding the attending ‘Orientation Programme’.
- Government school teachers (58%) are better than Aided school teachers (42%) regarding the getting training in ‘Science Quiz’.
- Government school teachers (46%) are better than Aided school teachers (45%) regarding the ‘Preparation of Learning Aids’.

III. Teachers perceptions on Physical Science Laboratory

Physical science teachers were asked to furnish the details regarding the conditions of the Physical Science Laboratory in their schools.

Table 3: Teachers perceptions on Physical Science Laboratory

Sl.No	Laboratory Materials	Yes (%)	NO (%)
1	Unsuitable for use	70	30
2	Defective/Broken	50	50
3	No convenient place	70	30
4	Insufficient materials for Physical science	75	25
5	Shortage of laboratory hours	70	30
Total		67	33

The following observations are clear from table 3,

- All the details of physical science laboratory conditions in the table 3 have indicated defects in the physical science laboratory for which high mean percentages are found for Yes (67%) than for NO (33%).
- 75% of physical science teachers have responded for insufficient laboratory materials as for physical science laboratory.
- 70% of physical science teachers have agreed for the laboratory materials as ‘Unsuitable for use’, ‘No convenient place’ in the physical science laboratory and ‘Shortage of laboratory hours’.
- 50% of them have indicated for the laboratory materials are as ‘Defective/Broken’.

FINDINGS

- Physical science teachers prefer more on good ‘Physical Science Textbook’ and ‘well equipped laboratory’.
- Regarding to the total number of training programmes Aided school teachers are better than Government school teachers with respect to Preparation of Question Bank, Attending Workshop and Refresher Course. The physical science teachers of Aided schools are found to be better exposed than the Government school teachers.

- Government school teachers have undergone better training with respect to Orientation Programme, Science Quiz and Preparation of Learning Aids than Aided school teachers.
- Among the various resources to teach physical science, science laboratory is the prominent one.

CONCLUSION

The training is successful in stimulating physical science teachers to improve their teaching then naturally quality of teachers will improve. Both Government school and Aided school teachers have the opportunity of in-service training programmes to a considerable extent. An effective in-service training strategy helps physical science teachers to improve their teaching of physical science. The physical science teachers highlighted the present condition of science laboratories in the secondary schools.

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