



A STUDY ON STATUS OF OBSERVATION SKILL IN SCIENCE AMONG VIII STANDARD STUDENTS

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Abstract

Science is highly creative and dynamic in nature. Science provides opportunity for an individual to develop inquiry skills, critical thinking, creativity, problem solving, decision making skills etc. Science teaching in schools play a major role in developing knowledge and process skills. Teaching of science should stress more on the processes than the product. Observation is one of the process skill which is very essential to develop among the students at upper primary level. But due to lecture method of science teaching, students are very poor in observation skill. They unable to notice fine details of experiments and specimens etc. Teachers of science often follows traditional method of teaching which hinder students sharpening of skill development. In this perspectives, a study has been conducted to know the status of students' observation skill in one of the school in Tamilnadu.

Introduction

Science is all about study the natural world through series of observation to know the truth. Observation is centrality of scientific discoveries. Scientific experiment starts with observations. No scientific knowledge invented without observations. Observation skill is a basic process skill in science. Scientist are very curious about natural phenomenon and they notice and observe carefully. Keen observations raise many questions in their mind which leads to conduct experiments and generation of knowledge. Observation is the first skill which comes under basic science process skills (BSPS). The process of observing is taking in information through sense perceptions. It is more than just 'seeing' and it is associated with collecting data using all the senses such as eyes nose ears tongue and skin as well as instruments that extend beyond the reach of our senses. Seeing allows the students to notice such properties as sizes, shapes, colour of objects or organisms, it is also to gather fine details. Hearing makes knowable properties of sounds such as loudness pitch and rhythm. Touching is to know the texture hardness roughness softness powdered crystalline in nature hotness and coldness. Tasting is to feel how some properties of substances are bitter sweet sour and salty. Smelling is to recognise the odour of particular chemical substances, and food items based on

the commonalities and differences. During observation one can use hand lens and microscope for observing the minute detail about the particular events or occurrences. Observation should be till the end of event or completion of experiments not just only in the beginning. Deep observation can provide more accurate information. The observation can be classified both qualitative and quantitative. Qualitative observations are qualitative in nature that is descriptive terms such as colour, smell, texture, properties and characteristics' of object or things or organisms. Quantitative observation refers to notice the numbers in terms of object or things or organisms. Quantitative observations usually are more precise than qualitative observations. Teachers of science in schools should focus more on developing observation skill. It was stated by National Curriculum framework (2005) that science teaching should provide ample opportunity to develop observations and other skills and it is one of the primary objectives of teaching of science but it is unfortunate that in most of the schools, the teachers not providing opportunity for students to develop observation skill, science teachers just merely transacting the subject knowledge. Lecture methods are largely occur in the classroom, very rarely lecture cum demonstration taking place. Practical experiences by students neglected by most of the teachers. Therefore students lacking behind in observation skill and they memorise the concept. Though the School Students are very enthusiastic in doing and observing the experiments but due to chalk and talk method of teaching students of upper primary not proficient in observation skill. Hence, to know the status of observation skill, a study was conducted in one of the school of Tamilnadu VIII standard students.

Objectives of the Study

1. To know the status of observation skill in science among the students of standard VIIIth.
2. To study the status of science teaching at upper primary level students.
3. To study existing science laboratory facilities for upper primary students.

Research Questions

1. How far students of standard eight proficient in observation skills in science?
2. Whether science teaching provide scope for students to develop observation skill?
3. Whether science laboratory is conducive for develop observation skill among students?

Design of the Study

A case study method was employed. Case for the present study was 28 students of Gudalur Government Higher Secondary School situated in Gudalur Taluk, Nilgiri District, Tamilnadu.

Statement of the Problem

A Study on Status of Observation Skill in Science among VIII Standard Students



Explanation of the term

Observation Skill: It is one of the first and foremost skill in Basic Science Process Skills. It refers to the process of observing and collecting information through sensory organs. The observation can be classified both qualitative and quantitative. Qualitative observations are qualitative in nature that is descriptive terms such as colour, smell, texture, properties and characteristics' of object or things or organisms. Quantitative observation refers to notice the numbers in terms of object or things or organisms.

Delimitation of the Study

- Study was delimited to observation skills in science.
- Study was delimited to students of standard eight in the academic year 2011-12
- Study was delimited to Gudalur Government Higher Secondary School situated in Gudalur Taluk, Nilgiri District, Tamilnadu.

Sample and Sampling technique

Sample for the present study was students of standard eight (English Medium) from Gudalur Government Higher Secondary School situated in Gudalur Taluk, Nilgiri District, Tamilnadu. The sample comprised of 28 students (7 Girls and 21 Boys). The purposive sampling method was adopted for the present study.

Data Collection

Data was collected personally by the researcher by administering the following tools and techniques after validation of experts. The brief descriptions of administration of tools and techniques are as follows.

Open ended Questionnaire: This is open ended performance based test wherein students employ their sensory organs for observations of pictures specimens' diagrams, chemicals and written their observations. The tool consist of sixteen items to test students observation skill in terms of identifying the similarities and difference in the pictures and specimens, noticing fine details, observing the colour, smell, taste, texture of chemicals, to make quantitative and qualitative observations.

Close ended Questionnaire: This test has been administered to know their knowledge about observation skill in science.

Rating Scale: Four point (always, sometimes, most of the time and never) rating scale was administered in students. This test has been administered to know to what extent students employed their sensory organs in science to develop observations skill.

Observation Technique: Researcher made participatory observation technique when the students engage in the process of observations skill. Further researcher keenly observed and

| Item No | Parameters of Observation Skill | % of Students in Beginning Stage | % of Students in Developing Stage | % of Students in Accomplished Stage | % of Students in Proficient Stage |
|---------------------|--|----------------------------------|-----------------------------------|-------------------------------------|-----------------------------------|
| 1 | Similarities and difference between plant cell and animal cell | (24) 85.71% | (03) 10.71% | - | (1) 3.57% |
| 2 | Observation of pencil and coin in a glass with water | (12) 42.85% | (10) 35.71% | (02) 7.14% | (04) 14.28% |
| 3 | Observation of flame of lighted candle | (21)75% | (03) 10.71% | (02) 7.14% | (02) 7.14% |
| 4 | Similarities & differences of parenchyma and sclerenchyma cell | (26) 92.85% | (02) 7.14% | - | - |
| 5 | Differences between ginger and potato | (25) 89.28% | (02) 7.14% | - | (1) 3.57% |
| 6 | Observation of decayed bread | (26) 92.85% | (02) 7.14% | - | - |
| 7 | Observing the mercury level in the thermometer. | (25) 89.28% | (02) 7.14% | - | (1) 3.57% |
| 8 | Observation of preserved Centipede specimen | (15) 53.57% | (05) 17.85% | (03) 10.71% | (05) 17.85% |
| 9 | Observation of Chemicals | (17) 60.71% | (10) 35.71% | - | (1) 3.58% |
| 10 | Listens audio on Saturn planet | (18) 64.28% | (03) 10.71% | (05) 17.85% | (02) 7.14% |
| 11 | Observation of Human Blood tissue slide in microscope | (27) 96.42% | (1) 3.57% | - | - |
| 12 | Observation of aquatic succession picture | (08) 28.57% | (05) 17.85% | (02) 7.14% | (13) 46.42% |
| 13 | Observation of sand. | (17)60.71% | (06)21.42% | (02)7.14% | (03)10.71% |
| 14 | Observing the thermometer in the beaker | (13) 46.42% | (14) 50.0% | (1) 3.57% | - |
| 15 | Observation of preserved spider specimen. | (11) 39.26% | (13) 46.42% | (02) 7.14% | (02) 7.14% |
| 16 | Observation of a plant (real specimen) | (19) 67.85% | (04) 14.28% | (03) 10.71% | (02) 7.14% |
| Overall Performance | | 67.85% | 18.97% | 4.91% | 8.25% |

Recorded students' behaviour in the field note.

Focus Group Discussion: It has been conducted to know whether the students experienced the skill of observations in the earlier class by employing their sensory organs.

Video graphy and Photography: Videography and photograph was made by the researcher at the time of administration of performance based test.



Data Analysis and Interpretation

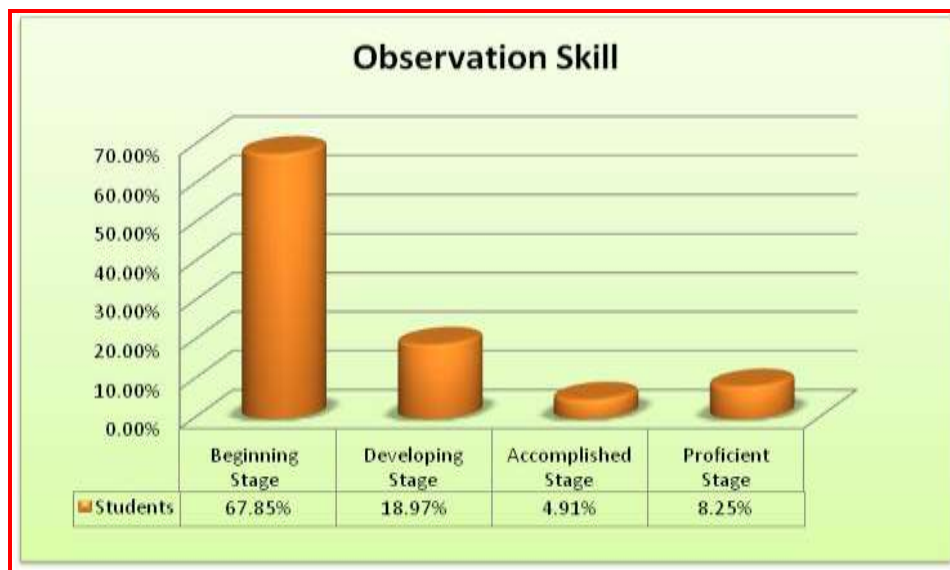
The collected data was analysed qualitatively by using rubric, content analysis, frequency percentages, triangulation of data.

Major Findings

Findings with regard to status of observation skill.

The following table shows the observation skill status in each item in the questionnaire.

The following graph shows the overall performance of Students in Observation Skill



- 67.85% students' observation skill was in beginning stage wherein students could not observe the similarities and differences between similar pictures, unable to observe the fine details of plant and animal specimens with the help of magnifying lens. Students did not employ all the sensory organs, and microscope during observations, for example colour of different chemicals was observed but smell, texture, and appearance of chemicals was not noticed by them.
- 17.89% students' observations skill was in developing stage wherein students observed very few similarities and differences between similar pictures. The magnifying lens and microscope were skilfully used for noticing very few fine details of specimens such as decayed bread, insects and sand to some extent.
- 4.91% students' observation skill was in accomplished stage wherein students observed most of the similarities and differences, fine details of specimens by employing sensory organs, microscope and hand lens.
- 8.25% students' observation skill was in proficient stage wherein students skilfully used their sensory organs and observed all similarities and differences between similar pictures. They noticed the colour, nature, appearance and texture of chemicals. They also observed

the fine details of specimens of plants, animals and sand with the help of hand lens. They skilfully operated microscope and observed the human blood slides.

Findings with regard to status of science Teaching

- Findings reveals that the science teaching largely follow the lecture method where teacher read the passage and clarify the concept. Also, teacher ask the students to read the passage and clarify the concepts.
- Teaching learning process predominantly confined to classroom not in science laboratory. Students were not exposed to field visit or multimedia theatre.
- Teacher sometimes show the models and charts related to science diagram or teacher draw the diagram on the board to explain the concepts.
- Very Rarely teacher demonstrate science experiments in the classroom wherein students are the passive observer of experiments.
- Teacher occasionally take the students to the laboratory for showing the specimens and apparatus however students are not engaged in any hands on experiences.
- Students were not exposed to hands on experiences neither in the classroom nor in the laboratory.
- During teaching learning process, teacher is the one who continuously giving the lecture and the students listens teacher lecture. Discussion debate dialogues are not occurred in the classroom, mostly traditional method of teaching followed to teach science.

Findings with regard to Laboratory facilities

- There was a separate good condition laboratory facility for upper primary students. The laboratory facilities are satisfactory in terms of building and availability of science specimens, charts, models, apparatus and instruments however as for as syllabus is concern some of the science equipment chemicals and specimens school need to purchase.
- Suggestions
- School students always desire to do experiments by their own. Learning becomes concrete and meaningful when there is interplay between learner and learning experiences. Hence, Science teaching should provide rich learning experiences to learner.
- Teacher should engage the students in “learning by doing” method for the development of observation skill.
- Teacher should adopt variety of learning experiences such as field visit, role play, hands on experiences, model making, multimedia presentation, group activity were not provided by the teachers. There should be hands on experiences for students to use science



equipments' and apparatus, microscope, preserved specimens, magnifying lens, chemicals and microscopes etc for developing observation skill.

- ❑ The examination system should not emphasis only cognitive aspects of science, it should also focus more on observation skill.
- ❑ Teacher also should demonstrate the experiments in the classroom and laboratory for developing observation skill.

Conclusion

Science is process and product. As per the recommendations of national level documents Kothari Commission, 1964-66; National Policy on Education, 1986; National Curriculum Framework, 2000, 2005. Teaching of science should give more weightage to both process and product. The observation skill to be developed, the observation skill is the foundation for develop all other skill such as communication, classification, prediction, measurement, inferences, hypothesis etc. Also observation skill develops students' critical and creative thinking skills.

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