

PROBLEMS FACED BY STUDENTS DURING TEACHING SCIENCE AT ELEMENTARY LEVEL IN PRIVATE SCHOOLS IN KARACHI

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ABSTRACT

The significance of schooling enlightens the worth of education in one's life. The education connotes much in our lives as it smoothes the progress of our learning, awareness and ability in proper way by changing the personality in order to accomplish positive attitudes. Notwithstanding the quantum of research works in the literature relating to schooling for science subjects at elementary level, there are still problems that face by students. The rationale of this paper is to investigate and express how students face problems during learning science. Our study is qualitative and based on phenomenological questions. Information was gathered by utilizing comprehensively semi-structured open-ended questions and the data was significantly evaluated and deduced in proper detail. Student's personal occurrences concerning this issue are examined eventually in this paper. Our study recognizes the factors that constrain students like to study science subjects and want gaining in dept understanding. It also unfold the influences that teacher's action and factors relevant to the students that create problems with the students. It was also found that majority of students like to learn science subjects and they feel it is interesting. There is a need for a teacher to possess professionalism and conscientiousness in his traits. He should have adequate knowledge and mastery of the relevant subjects he is tutoring and familiar with innovative techniques.

Keywords: Science students, class room environment, technology in teaching, issues of science students.

INTRODUCTION

Education has great impact on nationwide development. It generates intellect of responsibility amongst people. Owing to learning, the general public not only recognize their responsibilities but effectively able to accomplish their rights on a national, communal and individuals levels (Ahmad, et.al., 2014).

The education builds up confidence in the children by building personality on them. Thus better schooling plays a great role which is essential for all in order to get success (Archana 2016).

Teaching is a multifaceted activity and is a progression that tends to provide controllable setting for the teachers in order to generate predestined learning amongst students. The objective of education is to convey worthwhile changes over students (Akhtar, 2018). In fact, teachers presume bigger liabilities owing to changes of times as well as niche in their responsibilities in order to combat existing challenges. These changes are primarily driven for the economic and technological advancement for our country since the past few decades (Akhtar, 2018). Most importantly, majority of the people prefer private educational institutes, mostly schools, because they endow with quality education (Rao and Khadar, 2004).

The education of science has got importance for many governments and researchers in the current education system. Many governments influence to improve the science education in

order to advance science education. Due to this reason, a lot of research work has been performed to find out what variables at all levels using different variables and methodologies (Adu-Gyamfi, 2014).

Education has numerous challenges today in our country for elementary students. The first and foremost issue has grown and resisted in the system since independence. We could not manage to provide suitable laboratories and equipment for the use during teaching science (Sarangapani, n.d).

The knowledge and implication of science teachers with regard to instructional procedures are critical for the development of interests and attitudes of students to pursue any science subject in the foreseeable future, for instance, procedures for appraisals, student's groupings and the nature of incentive and penalty (Anderman et al., 2012).

The aim of this research paper is to investigate whether teaching science at elementary school level in private school in Karachi is easy or not, to explore the teaching method using technology, by examining the circumstances why students perform better and learn better using experiments in their laboratories. The reason of our study is to inspect the problems faced by students during teaching science at elementary level in private schools in Karachi. This study will investigate the questions concerning issues related with common difficulties that may student face and the ways teachers assist students to prevail over their difficulties. Further, the study will be focused on the nature of problems faced by students during teaching science.

Science gives the knowledge regarding the material and natural world. The knowledge acquired from science can be examination, measurement, discovery, assumption and theoretical imagination relevant to non-human objects, their possessions and interfaces. The topic of science diverts attention towards material world whether the subject matter is relevant with the topic of forces in physics or whether it is the solubility of substances issue in water related with chemistry or it is related with biology genetics. This attention tends to attract the processes to think and induce students to learn regarding the basic concepts and theories associated with them. Conversely, science class rooms and schools lack this approach evidently. Indeed, science classes are not unique with history and language classes. Teachers teach students from textbook (Sarangapani, n.d).

Research Questions

The research was guided by following research questions which assist to accomplish the purpose of the research.

Thus, the research paper will examine the following two research questions:

1. Learning science at Secondary school level is not an easy task?
2. What factors are involved causing problems faced by students learning science?

METHODOLOGY

This study is a qualitative study based on the composition of phenomenological inquiry. The aim of our study is to explore and highlight the problems faced by students during learning science as well as their impact on their academic performances.

Our study involves interviews of 20 students from 10 different schools in District East Karachi. Therefore, ten different schools in District East were selected to explore the challenges faced by students by elucidating the purpose and benefits of our study. A gender steadiness was required in order to evade gender concerns in the choice of participants. Thus, one boy and one girl were selected in each school. Similarly, other issues were not seen as

important considerations for example the race and social class of the participants. All interested students may contribute notwithstanding of their gender, race and social class. Experienced tutors who were in the field of education since the last five years were also involved in the selection of students. New teachers were excluded and the motive of the elimination of new tutors was that they did not be able to please and coherent the complicity of the phenomenon for students at their early careers.

The interviews were carried out at an agreed locality decided by students and researcher with exceptional prominence on confidentiality to the extent possible with the accord of the interviewee. With the consent of students, the talks with interviewees were audio documented for an accurate account of what these students wished to say (Velez, 2006). Comments were written during the interview to ensure against breakdown in audio documenting. Each interview was performed once, for the period of around thirty minutes with each participant. This is regarded as a suitable extent of time to remain the participants incited and engaged. If longer the discussion may result in tediousness and tiredness for both the interviewer and the participants (Velez, 2006). Prior to start an interview, students were requested to sign a permission form specifying that their agreement to contribute in the examination were guaranteed that their obscurity and privacy will be protected at all phases of the study. Data collected from the interview will be analyzed in the next chapter. Conclusions may be drawn on the basis of findings of interviews and recommendations may be given.

FINDINGS AND DISCUSSION

In this chapter, findings of the research will be presented with students' comments and their expectations as per the objectives of the study. Further, their findings will be analyzed.

The first three questions of our study for our selected participants are based on Yes or No where they have to answer either Yes or No. These are based from question 1 to question 5. The analysis for question 1 to question 5 is given below:

1. Students believe that they like to learn science at secondary school level

Of the questions asked to 20 participants, 12 students believe that they like to learn science at secondary school level and 8 students believe that they do not like learning science at secondary school level. Thus the majority of the students have an opinion that they like to learn science at secondary school level.

2. Students believe that they enjoy learning science at secondary school level

Of the questions asked to 20 participants, 13 students believe that they like to enjoy science at secondary school level and 7 students believe that they do not enjoy learning science at secondary school level. Thus, likewise, we can say that the majority of the students have an opinion that they enjoy learning science at secondary school level.

3. Students believe to pursue a career in science subjects

Of the questions asked to 20 participants, 13 students believe that they like to pursue their career in science subjects in the future while 7 students believe that they will not pursue their career in subjects. Therefore, similar to the above two questions, majority of the students have ambition to pursue their career in science subjects in the future.

4. How do you see the learning of science at secondary school level?

The feedback to this statement was based on detailed answers provided by the participants. One student argues that learning of science is interesting for him and that we learn nature in the subjects of science, as under:

“Learning of science at secondary school level is interesting for me where we learn the nature of science in truthful manner. Their practical and experiment are classified and analyzed in proper way.”

On the contrary, a student argues that the purpose of getting science knowledge is to seek the knowledge of natural world. In these subjects, students are involved in their topics as compared to commerce subjects, as under:

“The purpose of getting science knowledge in depth is to see the natural world by acquiring knowledge, conceptual understanding and skills to solve problems and make decisions. In science, students actively involved in their own learning. Science is a ways of thinking.”

A participant gives a response that science develops problem solving skills by increasing their knowledge. According to him, the concept of rote memorization can be reduced. His remarks were under:

“For me, with the help of learning science, students can develop conceptual framework as well as may develop problem solving skills. By this, their knowledge may increase and they can memorize the information easily. The practical work and experiments promotes student discussion and group activities. Also, students can give interest and participate in enjoyable way.”

The subjects of science (in contrast to commerce subjects), give real life logical applications by using innovative technology. In her words:

“This is simple. The science subjects give logic to solve any problem or issue by creating real life applications. Science education gives an idea how to use new invention and new technology. It also provides information that how earth functions by making use of natural resources. It also teaches us by observing impact of shortages of these resources that affect living things and how to conserve these resources.”

Further, the learning of science enhances reasoning ability by gaining knowledge of experimental work. As noted by one of respondents, it is interesting and important subject, as under:

“The learning of science at secondary school level increases and develops reasoning ability of science by understanding the practical skills for a particular work or project. Science is the important subject. In learning science, for teachers, it is easy to teach them and for students, it is easy to understand a concept or process. Also, student can find this situation valuable to solve other issues easily. It gives deep understanding of a subject both in terms of theory and practical. It clarifies the concept of any process clearly and students can aware of different dimensions of science.”

Most importantly, as noted by one of the students, science is interesting subject that motivates us to observe new inventions. This may help to take better decision in the words of our respondent:

“The learning science at secondary school is interesting. It encourages students to observe new inventions and natural world in a better way both practical and theoretical. They give proper understanding and skills for a particular concept or idea or process in order to solve problems or increase knowledge. After that, better decisions can be taken for different issues. It is easy to memorize. The science gives curiosity for the natural world.”

The two students gave nice remarks and told that different topics of science are fascinating if someone understands concepts of the theories and its applications. Then it is easy for them to memorize. The knowledge communicates to the end user in proper way:

“I like it because learning science at secondary school level develops scientific skills of us. It increases the knowledge of a case or process because we involve in both theory and practical. The learning of science investigates and evaluates scientific evidence in an effective way by drawing conclusions and communicating scientific ideas for the next research. It gives practical results accurately. We can increase technology due to scientific practical.”

“It is fascinating if we understand the concept and application of any topic. The scientific knowledge communicates to the end user in a better way to understand their ideas, arguments or inventory due to the practical nature of the topic. We can understand a theme or idea practically if theory is difficult to understand. These concepts may help us to apply them in familiar or similar situations. The skills of student may develop and increase inventive thinking of student by scientific information.”

Practical and experiments in the laboratory increase the interests of students in better way. They help them to get better knowledge. They provide knowledgeable results effectively and efficiently.

“Learning science enables students to increase scientific skills and knowledge. Students may take interests to carry out scientific investigations for any topic. We can do any type of practical for testing or understanding scientific process. They provide knowledge what to do and what should not do for specific experiments. Experiments give better ideas to understand and grasp the knowledge. Also, numerical calculations and diagrams give better analysis and for data interpretation so that appropriate conclusions can be taken for certain theories or ideas for which we are undertaking the practical or experiments.”

The learning of science enhances the development of students and increases the behavior of student to the society and thus creates sense of responsibility in their minds for safe working. A student remarked:

Learning science at secondary school helps student to increase his or her development. It increases the attitude of student to make them responsible and caring individuals of society. It links the lives of students inside and outside school by enhancing the sense of responsibility by respective others. It gives an idea how working in a team is effective and collaborative. It supports others to create safe working environment for living things.

Further, learning of science is interesting for few students. It helps to create safe working environment. It encourages student to generate new ideas. It is interesting to learn. It also increases scientific skills and knowledge of students by augmenting the capability of innovative thinking as noted by few respondents.

Science knowledge at elementary schools gives better decision making skills to students. The science subject is easy. One respondent argued in that way:

It helps us for getting better decision. It is helpful and gives deep understanding of a topic if we understand the concept of any idea or process. Learning of science is easy. I get more information about previous topics of science.

5. Explain why you believe that learning science is an interesting one?

The world defines the concepts of science and it helps to succeed in the world. Science can be seen everywhere and it can be interrelated with anything in this globe. Two of our respondents argued in that way. One of them gave a brilliant example:

Because science is surrounded and varied with everyday life. Our world defined scientific concepts and they help us to succeed in the world. Learning science means learning how to think, learn and resolve problems and take decisions in practical and better way. No doubt, science gives this education for our lives.

The learning of science is interesting because we can find science everywhere. It is all about thinking what we think about the science. The knowledge of science is related with the scientific methods and inventions. What we achieved and what we have to achieve is dependent with science. The science can be linked to any thing. For example, just take an example of school bus. It is the product of scientific invention as mechanical engineering. Roads, sidewalks, road infrastructures are the examples of scientific inventions. The smart phone at the hand of student is the outcome of software engineering due to the knowledge of science.

It is interesting for me as it is related with both theory and practical. Practical help me to understand concept effectively and efficiently. A student gave response nicely:

Because the learning of science at school is related with theory and experiment. We can decide about any concept or idea due to practical or experiment. We can take better decision on the processes, or ask questions from other students or teachers, test and evaluate the result and also make further future decisions. The other reason is that we have thorough information and appropriate knowledge of any topic.

One student argued in this way that science is interesting to him as it is related with the problems in the form of theory and solutions in the form of practical. In her words:

I believe learning science is interesting because it involves direct problems (theory) and solutions (experiment/practical) that increase the knowledge and skills of the student. Problem solving and critical thinking are important parts for student learning in school. The other reason is that the scientific inquiry gives us proper reasoning to understand the real topic and we can be better involved in critical thinking. Critical thinking is needed in every subject.

The science learning is interesting for the majority of students. It is due to the practical nature of study. Also, it is amazing subject and the practical are amazing.

Two students remarked exclusively:

Because the practical nature of study, it motivates students with exciting material in the books related with a particular topic. The learning of science engages students to understand the concepts and encourages them to read further. The other reason is that the learning of science is relevant to the daily life that builds the knowledge of student by increasing the power of better decision making. The science education gives opportunity to get skills and expertise for succeed in the class and other areas.

Learning science is amazing. It is not the favorite subject of mine but it is favorite because it teaches us beyond the classroom. Sometimes the practical and experiments are funny that involves interests in the discovery of all past inventions.

Getting knowledge of science is fascinating with the implications of its knowledge to the world and observations for students as well as others. This is interesting owing to the creation

of observations in the presence of science. Thus the observations have dealt in great depth in the knowledge. For such, it is interesting as to give proper reasoning of any idea or process. The observations with regard to the science knowledge by five respondents are that:

- (i) Learning science at secondary school level is fascinating and interesting. The reason is that it explains our world and the skills we learn from the classes are useful to apply them outside the classroom. For example, science teaches us how to heat Bunsen burner or recite the periodic table. We can know the awareness related with the centre of earth (if we talk about planets in Physics).
- (ii) Learning science for me is interesting because the subjects of science give observation to us. We observe things due to the presence of science. We can know what will be the effect of chemicals if we combine them. We can know what will be the effect of observation changes etc etc.
- (iii) Because the science give reasons for what is happening in the world. As we know that the subject is related with theory and practical, with the study of practical/experiments, we can find proper reason of the theory. Science develops the skills of problem solving and critical thinking.
- (iv) Learning science is interesting for me because it is based on facts and logical reasoning.
- (v) Its experiments are interesting. The practical motivates us to investigate further.
- (vi) Learning science is interesting one because I know about what is happening and how and why, like circulation of body.

CONCLUSIONS AND RECOMMENDATIONS

After analyzing data, we may conclude that the education of science has got importance for many governments and researchers in the current education system. Limited resources in the class are basic reasons for the problems faced by students in developing countries. This may originate deficiency in science faculties, worse book qualities, a structure of study that encourages rote memorization, shortage of labs/equipment and additional possessions for teachers. According to our study, majority of students like to learn and enjoy science subjects at secondary school level. The subject of science gives real life situation with appropriate applications using innovative technology. The subject of science is interesting that motivates the individual to observe new inventions. It enhances reasoning ability. The learning of science enhances the development of students and increases the behavior of student to the society and thus creates sense of responsibility in their minds for safe working. Practical and experiments in the laboratory increase the interests of students in better way. The science knowledge increases scientific skills and knowledge of students by augmenting the capability of innovative thinking. Science knowledge at elementary schools gives better decision making skills to students. Further, Science can be seen everywhere and it can be interrelated with anything in this globe. Practical helps the students to understand the concepts of any ideas effectively and efficiently. It has been a debate since long by the teachers relevant to the continuation of association between teaching-learning style match and its impact on students' performances. Lots of books have been published but the debate on the subject may not end. The tutoring procedures for science teachers such as ways of appraisals, grouping, rewards and penalties have great impact on the interests of students as well as to pursue science subjects (Anderman et al. 2012). Pakistani primary school teachers may not have inevitably an educational background for science and how they will teach the student is evident from their background. The science text books play a key role in learning science. Quality of

science textbooks is not effective. The text books are very theoretical, formal and inappropriate to develop exact concept by generating students' interest. The study recommends that teachers should include the interest of students and the adequacy of their input in the science subjects for its progress and technological development (Fensham 2008). Teachers must teach science like a science subject (Wieman, 2008). Teachers should use by the help of presentation of ideas and images to solve complex problems. Further, they have to achieve new scientific knowledge in the class. This will increase the performance of students (Kozan-Naumescu & Pasca, 2009). Teaching methods may be organized with appropriate standards and the ways as scientists carry out scientific research (Wieman, 2008). The teachers should give extra time for teaching in schools. Further, the class size has favorable impact on the performance of students. The class is a factor that influences student learning in American education (Duflo et al., 2015). Smaller the class, easier for the teachers to manage.

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