

Innovation in Teacher Education with Special Reference to Science Teaching



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Abstract

Innovation as the act or the Process of inventing or introducing something new. It is also a new invention or way of doing something. By innovation we can design and developed new technique, methods, approach to improve effectiveness and efficiency in teaching for teacher and teacher education with special reference to science teaching. An innovative practices are therefore those actions or practices engaged by man through which new invention are introduced into the society. Innovative Practices can be seen in the areas of health, communication, agriculture, industry, governance, education, Science Teaching etc. It is believed that innovation in Teacher Education can help to enhance the Students academic achievement in the Science Subjects. There are many innovations in different subject for the Teaching of subject at Secondary Level. But here we discussed only with Reference to Science Teaching and discussed the new things introduced into Science teaching in the field of teacher education for more efficient and effective academic achievement of students.

Keywords: Innovations, Teacher Education, Innovation & Science Teaching.

Introduction

Science is a systematic enterprise that builds and organise knowledge in the form of testable expiations and Prediction about universe. It is best alternative approach to develop the Scientific attitude at lower level to higher levels students.

The quality of nation depend upon depends upon the quality of citizens. The quality of citizen depend upon the quality of education and quality of education depends upon the combined efforts planners, educationists and administration, however the most Significant factor is the quality of teachers. It means excellent and efficient teacher can change the fate of nation. According to M.K. Gandhi "By education, i mean an all round development in the child a teacher helps a child in bridging out the hidden capabilities". He/She unfold what is within, hidden and untapped. He/She makes explicit what is implicit in the students. So teacher importance in teaching-learning Process is very much. The secondary commission (1952-53) report stated "we are convinced that the most important factor in the contemplated educational re-contraction in the teacher, personal qualities his educational. qualifications, his professional training and the place that he occupies in the community". It is very true that "No people can rise above the level of its teachers" (NPE 1986). The teacher is real and dynamic force of any institution. To improve the efficiency of teacher and best teaching style by which we can make learning teaching process easy Innovations is necessary.

There are many Innovations in different subject for the teaching of subject at secondary level but here we discussed only with Reference to science teaching. There are many issues that need urgent attention for improving the quality of Teacher education programme in India. There exists a Common Problem in Schools regarding the methods through which Science has been taught. Student should not only know "What scientists do" but "how scientists do" and perform science for themselves, the student should be able to observe, measure, compare, describe, and evaluate by them selves.

Aim of the Study

The objectives that guided this study are:

1. To study the innovative Programme in teacher education.
2. To study the innovation in teacher educational system.
3. To investigate the current innovations in Science Teaching.

Initiative steps of Innovation in Teacher Educational System:-

1. Establishment of NCTE by government of India on August 17, 1995 as a Statutory body responsible for the regulatory as well as Professional aspects of teacher education.
2. Programme of mass orientation (P-Most) was launched in 1986-1990.
3. Special orientation programme for Primary Teachers (SOPT) was taken up in 1993-94 to provide orientation to Primary School Teachers.
4. NPE, 1986 recommended the operational black Board (OBB) programme for the Professional growth of teacher.
5. Three National curriculum Framework on Teacher Education have been brought out by the National council of Teacher Education 1978, 1988 and 1998.
6. NCF-2005 also give the direction for innovate of teacher at primary level.
7. New educational policy 2019 may be launched in august 2019 by NDA Govt. which is helpful for Teacher and Students also.

Innovative Programme in Teacher Education

1. B.C.Ed (1989) by DAVV, Indore.
2. M.C.Ed. (1991) by DAVV, Indore.
3. Master of Educational Technology (Computer Applications) by SNDT University, Mumbai.
4. M.Tech (Educational Technology) by Kurekshetra University, Kurekshetra.
5. B.Sc. in Teaching Technology by Sikkim University Mannipal.
6. Activity Based Teacher educational Programme, DAVV, Indore (1991).
7. Personalized Teacher Education Programme, Lucknow University Lucknow.
8. Four Years Integrated Programme of Teacher Education, Kurekshetra University, Kurekshetra (1955).
9. Four Years Integrated Programme of Teacher Education, RIE, NCERT (1963).
10. Indian Institute of Teacher Education, Gujrat (Bill 4, 2010)
11. National Curriculum from work on Teacher Education (2005)
12. NPTEL (Online Learning Course Organized by IIT & IISC Bangalore).
13. NPE-2016

Innovation in Science Teaching

School innovation in Science is a major Victorian Government initiate that development and validated a model when by School can improve their science teaching and learning. In today's digital age teaching of Science and related subjects are not solely dependent on black-board teaching or through the explanation of Teacher alone.

In Today's increasingly globalized world, it is important to make learning and education a holistic experience beyond class rooms academics keeping this in mind, Indian schools are introducing various innovations in class-rooms to give students all-round development and growth. These are many methods to improving Teaching methods in science for teacher. Firstly methods of ideas of teaching is virtual teaching

with the help of this build a better understanding of subjects amongst. Here's a glimpse of some innovative techniques that teachers are trying out to make learning effective, engaging and fun and the achieve the goals.

Hands on Learning

This is best Teaching methods invented so for that involves the active participation of students to experience scientific concepts than to just have audience view. schools are Promoting the use of low cost apparatus in class rooms to help students to have hands on learning experience.

Story Telling

Story telling describes the society and cultural activity of shearing stories, sometime with improvisation embellishments. student loves to hear stories and therefore, story telling is one of the best ways to get their attention in class.

Teacher can explain the fact of Biology, chemistry or the law of physics in the form of stories. This is a mental organizer as human brains can remember stories than just plain facts. Some Teacher Present the whole Concept as a Story while some others use a Story to open and end the Session.

Role Play

Role Play bring in the element of entertainment into the class room. This innovative methods is becoming an integral. Part of Science Education as Student can intellectually and physically involve trough activities while learning a new concept.

Sports Based Learning

This is an interesting approach to learn Problem solving in Physics or a stepwise methods to study Complex reaction. A game of football or cricket helps them to learn about Percentage, average, Probability which can find its use in physics programs. This methods give the ideas of team work.

Science Text Cards

This is an innovative Teaching methods to convey the Science facts is an easy and organised way. In this activity Statements related to Science concepts are written on index Cards. Text Cards is a good Strategy to help students look at the word and understand the meaning of it.

Virtual Science Labs

Virtual Science Labs are the way of the future, as more and more technology is brought into the class-rooms. They can be incredibly supportive of current teaching methodology. These are many virtual Science labs available in India. IISC Bangalore, IIT Bombay, IIT Kanpur, CSIR Lucknow and other institutions work in the field of approaches. In Science labs Detailed Diagrams, Illustrations innovates Teacher and Student also.

Social Media

Social Media is one of the most important way to teach Science. The Different Social media platforms can be used wisely to teach science. To make the science class-rooms more interesting and engaging by twitter, Google, UC browser, you tube, facebook etc student can ask any questions.

Thinking Maps

This is an ideal way to visually represents Different through process which helps to organise.

Science Education with a better flow. These are Different types of thinking maps are available which can be chosen wisely to represents the particulars topic.

String Telephone

String Telephone is one of the technique that can innovative the teaching methods in Science. In Laborites we can make a string Telephone. String Telephone Like a Toy with the help of this toy we can Illustrate that Sound travel through solids such as thread or string.

Science Museums

Science museum is one of the important function for the innovation teacher and student also. We give the opportunity to students to visit a science museum as the part of learning process.

There are many Science museum like- Regional science City Lucknow, Jai Prakash Narayan museum etc.

Science fair

Science fair is the important function for the innovation of teaching learning process. School Should Conduct Science fair as part of their teaching strategy to Promote Student interest in Particular subject.

Audio- Video Supplements

Many educational institutions in India have. AV- Equipped class-rooms or venues to boost student learning and understands. Teacher Explain Difficult topic like- Phy, Chem, Maths through Graphical representation with the help of smart boards.

Science Movies

Using movies, Television shows or video clips to turn students into scientific fact-checkers can affirm their book- learning.

Science Clubs

Due to individual Difference to innovate students Science clubs help in Teaching. In this clubs students can be promoted with the help of Teaching Tactics "Learning by doing".

Science Exhibition

Education does not Simply mean the ability to read. and write, it is a wide term used to describe the complete process of development. Science exhibition in schools at different levels are one of the easiest way to enhance students interest in science and technology.

Science Quiz

A Quiz is a firm of game or mind sport in which the players attempt to answer question

correctly. It is a game to test your knowledge about a certain subject.

Build Your Models

A Scientific model is a physical and mathematical or conceptual representation of a system of ideas events, or process. Models are building blocks of science ask your student to build their own model using the scientific knowledge.

Peer Teaching

It is one of the most effective strategies to even up the learning innovation. The interesting aspects in Peer Teaching is that students tend to respond more activity the class become attentive and interactive.

Conclusions

The above methods cleanly indicates that teacher Education Programme at Secondary Level needs to be examined critically in terms of its innovativeness. If we adopt then every Teacher educate to learner by a unique Identification. Counseling and follow up programme should be initiated and mode effective in the field of science teaching.

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