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Theatre Integrated Inquiry Training Model For Teaching Physics : A Conceptual Framework

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Abstract

Physics is a basic to the understanding of almost all the branches of science and technology. Physics is a fundamental science that requires students to develop conceptual understanding, scientific attitude and inquiry skills. However traditional method of teaching like lecture based teaching offer limitation to students engagements and meaningful learning. Educational theatre integrated with inquiry-based learning provides an innovative and learner center approach that promotes active participation, creativity, critical thinking and problem-solving, conceptual understanding, while educational theatre provides engaging, experiential and collaborative learning opportunities. This research paper proposes a Theater- Integrated Inquiry Model (TIIM) for physics teaching. This model combining with role-play, simulation, scientific drama and improvisation with the stages at inquiry learning. The proposed framework encourages students to observe question, investigate, explain, reflect and apply scientific concepts through meaningful experiences.

Keywords :- Educational Theatre, Inquiry training model, teaching physics.

Introduction

“Imagination is more powerful than knowledge – Albert Einstein.

The word ‘Physics’ has been derived from the Greek word. “Physike” (repisteme) meaning love and “Physis” meaning nature. Therefore the word physics stand for love of nature. In the other word, it is the study of matter, natural events and energy. Physics occupies a privotal role in the school curriculum lying the foundation for future studies in science engineering

and technology. Although it is essential for understanding the physical world, many students perceive Physics as difficult because of abstract concepts, mathematical formulations and teacher – ‘Centered instruction. Such approaches often reduce curiosity and set limit opportunities for inquiry. Effective Physics teaching shifts from passive lecture to active learning due to methods of teaching like inquiry training model, interactive demonstration, problem solving method and technology integration etc. Teacher prioritize conceptual understanding over rote formula manipulation.

Inquiry – based learning is a student centered teaching method that encourages student to ask questions and investigate problem. This type of learning environment make the student are actively engaged in the learning process and it given opportunity to explore their based learning and natural curiosities. Inquiry based learning has shown to improve critical thinking skills, problem solving and creativity.

Educational theatre includes strategies such as role play, scientific drama, story telling, simulation, improvisation and performance – based activities that make classroom instruction into an interactive learning experiences. These approaches encourage students to participate actively and express scientific ideas creatively, communicate effectively. These make the class room learning relate to real life. In Physics education theatre can simplify abstract concepts by presenting them through meaningful context.

This paper proposes a Theatre integrated inquiry training model as an innovative frame work for teaching physics that aligns with constructivist learning principles and the vision of NEP 2020.

Inquiry training Model :

These model are perposed by Richard suchman in 1962. Focuses on Fostering students inquiry skills through a structured process involving problem identification, data gathering and analysis. Elements of inquiry training model are objectives syntex, social system, principle of reaction and support system. The aim of inquiry training is to help students develop the intellectual disciplines and skills necessary to raise questions and search out answers stemming from curiosity. The main learning outcome of ITM are the process skills like observing, collecting and organizing data, identifying and controlling variables, making and testing hypothesis formulating explanations and drawing inferences. The splendid integration of these process skills results in meaningful experiences.

Educational Theatre :-

The Educational Theatre took form in the 60' in Great Britain as a direct response to both school and theatre necessities. Theatre in education combines elements of performance,

facilitation and educational theory to address curriculum content and social issues. Its key component include active participation, research based content, skilled facilitation and follow-up' activities that extend learning beyond the theatrical experiences. Theatre in education can be designed to stimulate reaction and participation from small audience through role play and debate. For very young children the production can be used on the traditional story allowing range of follow up activities.

Stages of Theatre – Integrated Inquiry training models are.

Stage 1 – Engage Through Theatre.

The lesson begins with a scientific drama, role play or storytelling activity to create curiosity.

Stage 2 – Observation.

Student observe the phenomenon presented in the drama and identify scientific events.

Stage 3 – Inquiry.

Student formulate questions, identify problems and develop hypothesis.

Stage 4 – Investigation.

Students perform experiments, simulation, demonstration or practical concepts under the guidance of teacher.

Stage 5 – Explanation.

Student analyse their observation and explain scientific concepts with guidance from the teacher.

Stage 6 – Reflection through theatre.

Student prepare a drama dialogue or presentation demonstrating their understanding of the concept.

Stage 7 – Application.

Student apply their learning to everyday situations and solve real life problems.

Stage 8 – Evaluation.

Assessment includes conceptual understanding, scientific attitude creativity communication skills collaboration and academic achievement.

Conclusion :-

The Theatre – Integrated Inquiry Training Model offers an innovative and learner – centered framework for teaching physics by integrating educational theatre with inquiry – training model. The proposed framework transform physics classroom into interactive learning through students actively participation in observing, questioning, investigating, reflecting and applying scientific concepts. The model has the potential to develop conceptual understanding, scientific attitude academic achievement, communication skills critical

thinking and problem – solving abilities. The theatre – Integrated inquiry model represents a promising pedagogical approach for modern physics education.

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