



EXPERIMENTAL LEARNING: ART INTEGRATED LEARNING IN CHEMISTRY

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ABSTRACT :

The objective of the study was to ascertain the impact of teaching with or without Art Integrated Learning in students' academic performance of senior secondary students in Chemistry. The sample consists of 40 students selected by purposive sampling methods. The pre-test, post-test, control group quasi-experimental research design was adopted in present study. The treatment last for three weeks. The data collected by using chemistry achievement test (CAT). The instruments are analyzed using independent test. Result of the study serves that there is significant difference in academic performance of students who learnt abstract concept in chemistry with and without Art Integrated Learning.



KEYWORDS : Academic performance, memory, students, art and teacher.

INTRODUCTION

The NCF 2005 has recommended "art as a subject at all stages covering all four major sphere i.e., music, dance, visual art and drama". As a teacher we must bring the arts squarely into the domain of the curriculum, amalgamate them in all areas of learning while giving them an identity of their own at relevant stages". The importance of music, heritage craft both in terms of their economic and aesthetic value should be recognized as being relevant to school education.

The Art Integrated Learning in the school curriculum is new focused towards joyful learning. In Art Integrated Learning activities such as theater, dance, music students are exposed to Art Integrated Learning at reading, writing and Maths. Art Integrated Learning improves the literacy skills of the students. Art Integrated Learning gives aesthetic, creative outlet and improves cohesion among student-student, student-teacher and teacher-teacher.

The Kothari commission (1964-66) emphasis, "In an age which values discovery and invention education for creative expression acquires added significance. Adequate facilities for in-service teachers in music and visual arts do not exist. The neglect in art education impoverishes the educational process and leads to a decline of aesthetic taste and values.

The 'National Education policy emphasized that school education is important to foster understanding of culture and social system of different parts of country.

Art Integrated Learning will lead to better learning in the class-room. Art Integrated Learning help students to apply art-based enquiry, investigation, exploration, understanding of concepts. Art Integrated Learning will make teaching-learning joy-full, and significant positive impact on development skills such as

communication skills, reflection, enquiry skills, unconditional mind learning leads to higher confidence level, enhanced self-esteem, appreciation for aesthetic and creativity etc., Art Integrated Learning is not only relevant for developing creativity and appreciation for inculcating art-based skills in students.

The chemistry is the study of matter and energy and interaction between them. Chemistry is everywhere in the world around you. It is in food, you eat, clothes you wear, water you drink, medicine, clean air, chemistry is also called as central science because with other science subjects like biology, physics, ecology and environmental science.

The chemistry education is systematic process of acquiring the fundamental knowledge about the universe. It is the vehicle through which chemical knowledge and skill reach the people who are in need of capacities and potential for development.

The scientific literacy is required for all future citizens in order to influence techno-scientific development in democratic society for sustainable development. Every developing nation needs more scientists to have additional scientific development. The school students needed certain level of scientific knowledge, scientific skills to become scientifically literate citizen.

As a chemistry teacher for more than three decades observed that students at secondary and senior secondary classes faces challenges in learning chemistry. The student's inability to organized taught concepts in such a way that facilitates easy to recall and to enhance learning of chemistry through method that foster memory is required. As a teacher, we used Mnemonics as fun in teaching-learning chemistry.

METHODOLOGY:

In the present paper pretest-post control group (CG) quasi-experiment design is used. Total 40 students of grade twelve participate in the study. Purposive sampling methods were used to draw the sample. There were 20 students in control group and 20 students in experimental group. Experimental group was taught oxidation and reduction by using mnemonics.

DEVELOPMENT OF MNEMONICS:

1) Oxidation is loss of electron and reduction is gain of electrons.

Oil Rig: oxidation is loss – reduction is gain (of electrons)

2) Cations are positively (+) charged ions while anions are negatively charged (-). This can be remembered with following mnemonics.

Cat have paws – cations are positive

Cat+ions: The letter t looks like a+ (plus)ing.

3) Anion is a negative ions:

Anegative ion= Anion.

Cation Vs Anion: positive Vs negative

Oxidation Vs reduction: electrochemical cell and electron gain/loss

AN OIL RIG CAT: At Anode, Oxidation Involves Loss of Electrons.

Reduction Involves Gaining of Electrons at cathode.

4) LOAN : Left anode oxidation Negative (on left side of reaction)

5) LEO says GER- Loss of Electron oxidation and Gain of electrons reduction.

6) Red Cat: Reduction of cathode

7) AN Ox: Anode for oxidation

8) Fat Cat: Flow Electron from Anode to cathode

The word oxidant and anode both begins with vowels. Both oxidation and cathode begins with consonants.

Control group were taught by same teacher with traditional chalk and talk methods for the period of three weeks.

The instrument Chemistry Achievement Test was developed by research with 50 items. Five response options objective test. CAT items cover all sub-topics of oxidation and reduction. CAT items for

pre-test and post-test are same with different numbering to give impression to students that it was different. Reliability of CAT was 0.86. The data was collected and analysed by using independent t-test.

RESULT:

| Group | Test | N | Mean | S.D | t-value |
|--------------------|-----------|----|---------|------|---------|
| Experimental Group | Pre-test | 40 | 23.1429 | 2.11 | |
| | Post-test | 40 | 46.80 | 4.70 | |
| Control Group | Pre-test | 40 | 23.42 | 2.2 | |
| | Post-test | 40 | 22.94 | 4.9 | |

$p > 0.05$, $df = 27$, $t = 20$

Result of the study reveals that students who were taught Chemistry concepts, oxidation –reduction in grade by Art Integrated Learning (AIL) activities mnemonics had either mean (46.80) as compare their counter parts taught by traditional methods has less mean (22.94).

Mnemonics as Art Integrated Learning positively, impact of leaning of the students and participant of student in learning process. Our result is line with Hayden (1995), Mastropiere (1998). Adeyene (2014) these study concluded that positive effect of mnemonics in learning and academic achievement of students.

CONCLUSION:

- 1) The enhancement of learning is challenge particularly in school system. The direct approach of explanation in the best approach to any specific content on curriculum, the ability to observe realms of facts and concepts catalyzed by placing boarder concepts relevant. Art are marginalized in our school system. Art Integrated Learning is instrumental values in promoting non-arts subjects.
- 2) Neuroimaging studies have showed that visual arts as well as engage many aspect of brain function and involve easy neural system. Mnemonics as Art Integrated activities is effective in improving students learning. It helps students to remember factual information, answer to questions and demonstrate comprehension. Teachers should use mnemonics as Art Integrated Learning to foster student's participation in learning and academic achievement.
- 3) In service teachers training should be regular to update on current and creative ways of mnemonics in school.

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