RESEARCH REVIEW JOURNALS
Volume-04
Issue-02
February -2019

ISSN: 2455-3085 (Online)
RESEARCH REVIEW International Journal of Multidisciplinary
www.rrjournals.com [UGC Listed Journal]

Multimedia in Learning Chemistry at Higher Secondary level

*[1]Mr. R. Selvaganapathy & [2]Dr. A .Edward William Benjamin

[1]*Ph. D Research scholar, Bharathidasan University, Tiruchirappalli (India)*
[2]*Research Supervisor, Bharathidasan University, Tiruchirappalli (India)*

ARTICLE DETAILS

Article History
Published Online: 10 February 2019

Keywords
Multimedia, learning chemistry, Higher secondary and pre test post test design

***Corresponding Author**
Email: vinayak11792[at]gmail.com

ABSTRACT

This paper entitled as **"Multimedia in Learning Chemistry at Higher Secondary level"** is tried to test the effectiveness of the multimedia courseware in learning chemistry at the XI standard level by choosing a sample of 40 students by comprising of 20 each with control and experimental group by adopting pre test and post test control group design. It is concluded that there is a significant difference was obtained in the experimental group compared with control group. So it is recommended to update the learning strategy at the XI std in learning chemistry. It is also proved that the passing percentage is also enhanced from this experiment.

1. Introduction

Educational Technology has emerged as a new discipline in the field of education. According to **Sharma** (1982), Educational Technology implies the use of all modern media, methods, materials, practices, and theories, principles for maximizing the learning by control of environment, media and method. In learner- centered approach, the strategies are designed to provide the students with a highly flexible system of learning, which is geared to individual's life and learning styles. Learning styles have been undergoing various changes from time immemorial. One among those styles is as e-learning from e- content. By reviewing the need of the learners, the investigator has focused on the title in this paper is on "**Multimedia in Learning Chemistry at Higher Secondary level".**

2. Need and significance of the study

Multimedia courseware helps to go out of the four walls of the classroom. This can be viewed in all accessible places sitting in a room. Since it provides animation pictures, even the most difficult concepts like the atomic structure, coordination chemistry and solid state can be taught interestingly to the students. It can be used to stimulate better teaching learning environment. As a result, information can linger in the minds of the students for a long period of time. Multimedia courseware can penetrate more deeply in to the development of human cognitive system with an immediate excitement than any other medium. Multimedia courseware is of more importance in the hands of the students. The student can learn at his own pace. The courseware is prepared by the investigator ensures an active interaction when using text, voice mode, key words, animation, self-evaluation and 'search' of new meanings and scrolling etc. This will motivate the pupils to attain the desired level of learning.

This Multimedia courseware for learning chemistry also presents the laboratory preparation catches the attention of the learner. This Multimedia courseware for learning chemistry can prove to be useful because it provides meaning for every difficult word in each slide. As a result the level of achievement of the learner will also be greater. Hence multimedia courseware for learning chemistry will be interesting and more meaningful for every learner and will bring about purposeful learning.

3. Scope of the study

1. Multimedia courseware for learning chemistry has a wider scope in the instructional process bringing the real situations and characters.
2. The learners will be able to understand the concepts very easily. Multimedia courseware for learning chemistry will reduce monotony, because it brings the real life situations.
3. Multimedia courseware for learning chemistry has got wider applications in the area of technological sciences in particular. It saves a lot of time and energy.

4. Objectives of the study

Major Objective

1. To find out the effectiveness of the Multimedia for learning chemistry at the higher secondary level.

Specific Objectives:

1. To find out the significant difference between pre and post test mean achievement scores of the control group.
2. To find out the significant difference between pre and post test mean achievement scores of the experimental group.

5. Title of the study

The title of the study is precisely stated as "**Multimedia in Learning Chemistry at Higher Secondary Level"**

6. Operational definitions

From the title of the study, "**Multimedia in learning chemistry at higher secondary level.**", the following variables are operationally defined meaningfully as follows;

1. **Multimedia :** The combination of various techniques depends on instructional objectives. multimedia kits, sound – slide combination etc.,

2. **Learning chemistry :** Refers how well a learner performs the task of learning chemistry in a class room at the higher secondary level through conventional method and with the help of Multimedia courseware in this study.

3. **Higher secondary:** Refers the first year students who have opted chemistry as one of the optional subjects at the higher secondary level.

7. Hypotheses

Major hypothesis

Multimedia for learning chemistry at higher secondary level is not effective.

Specific hypotheses

1. There is no significant difference between pre and post test mean achievement scores of the control group.
2. There is no significant difference between pre and post test mean achievement scores of the experimental group.

8. Design of the study

The present study adopted the experimental design with the sample of 40 from XI standard students from Trichy district by using purposive sampling technique.

9. Analysis and interpretations of the study

Hypothesis: 1

There is no significant difference between pre and post test mean achievement scores of the control group.

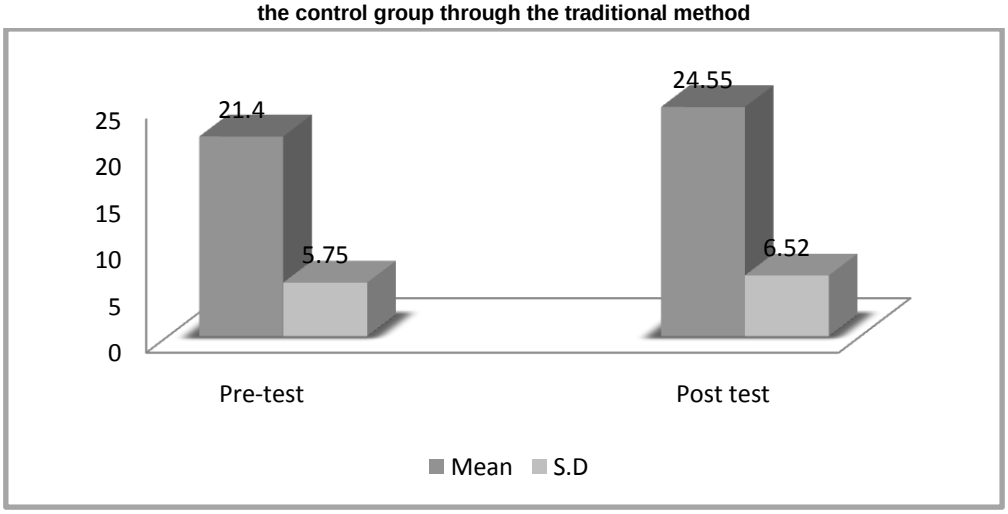
Table 1.1.The pre and post test mean achievement scores of the control group

Test	No of students	Mean	S.D	Mean difference	't' value	Degrees of freedom	Level of significance (0.01 level)
C- group Pre-test	20	21.40	5.75	3.15	1.623	38	Not significant
C- group Post test	20	24.55	6.52				

The mean scores of the pre test scores of the control group through traditional method is found to be 21.40 with SD of 5.75. The mean scores of the post test of the control group through traditional method is found to be 24.55 with SD of 6.52. The mean difference 3.15 is found to be not significant for the 't' value of 1.623 for 38 degrees of freedom at 1% level of significance. Therefore, the hypothesis is accepted.

It is concluded that there is no significant difference between pre test and post test mean achievement scores of the control group.

Figure 1.1 shows the pre and post test mean achievement scores of the control group through the traditional method



Hypothesis: 2

There is no significant difference between pre and post test mean achievement scores of the experimental group.

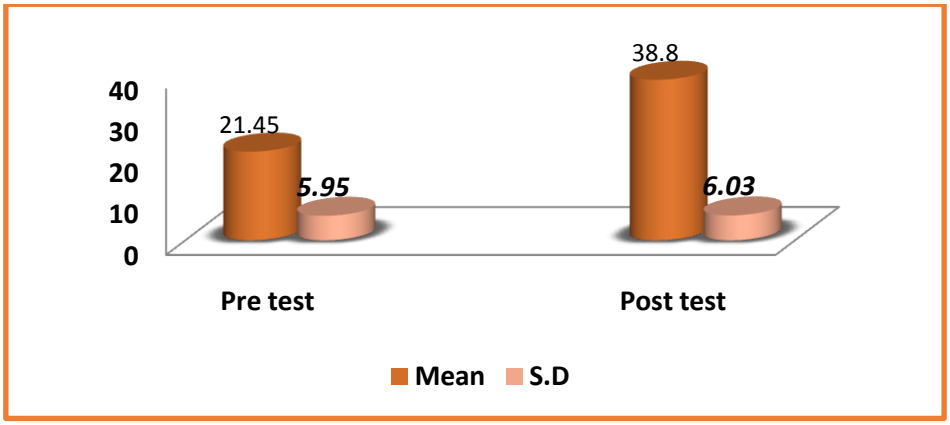
Table 1.2.The pre and post test mean achievement scores of the experimental group

Test	No of students	Mean	S.D	Mean difference	't' value	Degrees of freedom	Level of significance (0.01 level)
E- group Pre test	20	21.45	5.95	17.35	9.16	38	Significant
E- group Post test	20	38.80	6.03				

The mean of the pre test scores of the experimental group through the multimedia courseware is found to be 21.45 with the SD of 5.95. The mean of the post test scores of the experimental group through the multimedia courseware is found to be 38.80 with SD of 6.03. The mean difference 17.35 is found to be significant for the 't' value 9.16 for 38 degrees of freedom at 1% level of significance. Therefore, the hypothesis is rejected. Hence,

It is concluded that there is a significant difference between pre and post test mean achievement scores of the experimental group.

Figure 1.2 shows the pre and post test mean achievement scores of the experimental group



10. Findings of the study

1. Multimedia Courseware for learning chemistry at higher secondary level is effective.
2. There is no significant difference between pre and post test mean achievement scores of the control group.
3. There is a significant difference between progressive and post test mean achievement scores of the experimental group.

11. Educational Implications

- As the utilization of a multimedia courseware for learning chemistry enhances the achievement level of higher secondary students.
- Multimedia courseware helps the learners to learn themselves according to their choice of interest and their own pace.
- Learning chemistry through multimedia courseware improves the pass percentage of students at the Higher Secondary classes.

12. Delimitation of the study

1. The sample is selected for experimentations is from class XI chemistry only.
2. The e-content prepared for learning chemistry is based on the state board syllabi prescribed under Uniform System of School Education in Tamil Nadu.
3. Only two chapters in chemistry at the +1 text book will be selected for development of e-content for learning chemistry.

13. Conclusion

The present study was carried out to find out the Multimedia in learning chemistry at higher secondary level. As the present learning process at the higher secondary level is rigid, time bound and outmoded, it was planned to device teaching tasks in the form of multimedia courseware for the benefit of the learners so that the learners could attain the mastery of the subject according to their own pace and ability and feel motivated through personal involvement in the process of learning. It is pointed out that the multimedia courseware is user control as the tasks are constructed and offered to each learner through a separate personal computer. The present study clearly demonstrates the effectiveness of multimedia courseware for learning chemistry at higher secondary level. As the multimedia courseware provides ample scope for learners' motivation and user friendliness, it is recommended that this type of technology supported courseware could be employed in the process of learning for all categories of learners.

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