

An Experimental Study on the Effectiveness of VAI Method

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Abstract: *The main aim of the present study is to know the effectiveness of the video assisted Instruction in learning chemistry among engineering college students. For this, the investigator applied experimental research method. This study describes and interprets the future of teaching method of chemistry subject at engineering college level. The investigator used the following tools for data collections. Achievement test in learning chemistry constructed and validated by the investigator (2014). VAI package on learning chemistry was prepared by the investigator (2014). In this present investigation descriptive and differential statistical techniques such as mean, standard deviation and 't' test are used. The experimental group I students are having average level of achievement in learning chemistry. The experimental group II students are having average level of achievement in pre test but high level of achievement in post test. The experimental group I students differ significantly in their pre test and post test score in learning chemistry. The experimental group II students differ significantly in their pre test and post test score in learning chemistry. The experimental group I and experimental group II students differ significantly in their post test achievement score in learning chemistry. It is concluded that the VAI method of teaching has effectiveness in learning chemistry subject among the engineering college students.*

Keywords: *Experimental group I, Experimental Group II, Pre test, Post test.*

I. Introduction

The wealth of knowledge acquired by an individual after studying particular subject matters or experiencing life lessons that provide an understanding of something. Education requires instruction of some sort from an individual or composed literature. The most common forms of education result from years of schooling that incorporates the studies of a variety of subjects. Education has been defined differently in the light of the need of the times in different countries. In this regard Clark has very highly observed "No writer on education however, much he may 'strive after universality of thought, can wholly shape himself free from the influence of time and place." Modern chemical engineers are concerned with processes that convert raw materials or cheap chemicals into more useful or valuable forms. They are also concerned with pioneering valuable materials and related techniques – which are often essential to related fields such as nanotechnology, fuel cells and bioengineering. The investigator being a chemistry post graduate and research scholar in education is very much interested in knowing the effectiveness of the different methods used in learning chemistry. In the present study the applied the blending of latest method (VAI) in the traditional method (lecture method) of teaching chemistry.

Objective of the study

The investigator of the present study framed the following objectives as:

1. To find out the level of achievement of experimental group I students in learning subject at Engineering college level.
2. To find out the level of achievement of experimental group II students in learning subject at Engineering college level.
3. To find out the level of pre test of experimental group I and experimental group II with respect to achievement in learning chemistry at Engineering college level.
4. To find out the level of post test of experimental group I and experimental group II with respect to achievement in learning chemistry at Engineering college level.

Hypothesis of the study

The investigators of the present study framed the following hypotheses based on the objectives framed earlier;

1. There is no significant mean difference between pre test and post test of experimental group I students with respect to achievement in learning chemistry at Engineering college level.
2. There is no significant mean difference between pre test and post test of experimental group II students with respect to achievement in learning chemistry at Engineering college level.

3. There is no significant mean difference between pre test of experimental group I and experimental group II with respect to achievement in learning chemistry at Engineering college level.
4. There is no significant mean difference between post test of experimental group I and experimental group II with respect to achievement in learning chemistry at Engineering college level.

Sample of the study

The present study consists of 60 students studying in MRK Institute of Engineering and Technology Kattumannarkoil in Cuddalore District of Tamilnadu state. The sample was selected by using simple random sampling technique. The sample forms a representative sample of the entire population. Equal weightage was given to various sub-samples. The distribution of the sample in Experimental Group-I and Experimental Group-II.

II. Method of the study

In the present study, the investigator applied experimental research method. This method studies, describes, interprets and predicts what will existing in the future.

Percentile Norms: Norms have been worked out for the achievement test in I year Engineering chemistry subject. The percentile norm with respect to their entire sample and its sub sample were computed for the achievement test. They are given in the table.

Percentile norm for achievement in Engineering chemistry

Percentile	Score Range	Norms
Below P ₂₅	below 21	Low achievement
P ₂₅ to P ₇₅	21-36	Average achievement
Above P ₇₅	above 36	High achievement

Analysis and Interpretation of Data

Hypothesis-1: There is no significant mean difference between pre test and post test of experimental group I students with respect to achievement in learning chemistry at Engineering college level.

Table 1: Mean, Standard Deviation and ‘t’ Values of Experimental Group I Students in Pre Test and Post Test scores in Learning chemistry

Experimental Group-I	N	Mean	SD	‘t’ value	Level of Significance at 0.05 level
Pre Test	30	21.79	5.70	9.29	S
Post Test	30	29.19	6.43		

In order find out the significant mean difference between pre test and post test the experimental group-I students in their achievement score in learning chemistry, the investigator calculated ‘t’ value. It is given in the Table 1, it is found to be [$t_{(30)}=9.29 > 1.96$], which is significant at 0.05 level. Hence, the framed null hypothesis 1 is rejected and it is concluded that the experimental group-I students differ significantly in their pre test and post test scores in learning chemistry at Engineering college level.

Hypothesis-2: There is no significant mean difference between pre test and post test of experimental group II students with respect to achievement in learning chemistry at Engineering college level.

Table 2: Mean, Standard Deviation and ‘t’ Values of Experimental Group-II Students in Learning Chemistry Pre Test and Post Test

Experimental Group-II	N	Mean	SD	‘t’ value	Level of Significance at 0.05 level
Pre Test	30	28.18	7.32	13.57	S
Post Test	30	40.26	7.82		

In order find out the significant mean difference between the pre test and the post test experimental group-II students in their achievement score in learning chemistry, the investigator calculated ‘t’ value. It is given in the Table 2, it is found to be [$t_{(30)}=13.57 > 1.96$], which is significant at 0.05 level. Hence, the framed null hypothesis 2 is rejected and it is concluded that the experimental group-II students differ significantly in their pre test and post test scores in learning chemistry at Engineering college level.

Hypothesis-3: There is no significant mean difference between pre test of experimental group I and experimental group II with respect to achievement in learning chemistry at Engineering college level.

Table 3: Mean and Standard Deviation and ‘t’ values of the Experimental Group-I and the Experimental Group-II students Pre test scores in Learning Chemistry

Group	N	Mean	SD	‘t’ value	Level of Significance at 0.05 level
Experimental-I	30	21.79	5.70	3.93	S
Experimental-II	30	28.18	7.32		

In order find out the significant mean difference between the experimental group-I and the experimental group-II students in their pre test achievement score in learning chemistry, the investigator calculated ‘t’ value. It is given in the Table 3, it is found to be $[t_{(30)}=3.93 > 1.96]$, which is significant at 0.05 level. Hence, the framed null hypothesis 3 is rejected and it is concluded that the experimental group-I and the experimental group-II students differ significantly in their pre test scores in learning chemistry at Engineering college level.

Hypothesis-4: There is no significant mean difference between post test of experimental group I and experimental group II with respect to achievement in learning chemistry at Engineering college level.

Table 4: Mean and Standard Deviation and ‘t’ values of the Experimental Group-I and the Experimental Group-II students Post test scores in Learning Chemistry

Group	N	Mean	SD	‘t’ value	Level of Significance at 0.05 level
Experimental-I	30	29.19	6.43	5.24	S
Experimental-II	30	40.26	7.82		

In order find out the significant mean difference between the experimental group-I and the experimental group-II students in their post test achievement score in learning chemistry, the investigator calculated ‘t’ value. It is given in the Table 4, it is found to be $[t_{(30)}=5.24 > 1.96]$, which is significant at 0.05 level. Hence, the framed null hypothesis 4 is rejected and it is concluded that the experimental group-I and experimental group-II students differ significantly in their post test scores in learning chemistry at Engineering college level.

Findings

1. There is significant mean difference between pre test and post test of experimental group I students with respect to achievement in learning chemistry at Engineering college level.
2. There is significant mean difference between pre test and post test of experimental group II students with respect to achievement in learning chemistry at Engineering college level.
3. There is significant mean difference between pre test of experimental group I and experimental group II with respect to achievement in learning chemistry at Engineering college level.
4. There is significant mean difference between post test of experimental group I and experimental group II with respect to achievement in learning chemistry at Engineering college level.

III. Conclusion

The findings of the study reveals that the experimental group II students are better in learning chemistry subject [post test performance] than the experimental group I students. The study recommended the combination of traditional method with the use VAI method in learning chemistry for the better performance of students at engineering college level

References

- [1]. Arve Perlberg (1967). Predicting academic achievements of engineering and sciencecollege students'. Journal of Educational Measurement, Vol.4, pp.241-245.
- [2]. Esen Uzuntiryaki (2007). Learning Styles and High School Students' Chemistry Achievement. Science Education International, Vol.18(1), pp.25-37.
- [3]. Henry E. Garrett. (2006): Statistics in Psychology and Education, Surjeet Publication, New Delhi.
- [4]. Kothari, C. R. (2004): Research Methodology, Methods and Techniques (2nd Revised Edition), New Age International Publishers, New Delhi.