EFFECTIVENESS OF E – BASED CONCEPT MAPPING TECHNIQUES ON PUPILS ACHIEVEMENT AND ATTITUDE FOR THE TOPIC 'GENETICS' IN ZOOLOGY AT PLUS TWO LEVEL

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ABSTRACT

Concept maps can be included and utilized in the e – Learning environment which can generate powerful and meaningful learning outcome. It could facilitate relevance Clarity. Coherence and Organisation in the teaching of science. subjects in general and Zoology in particulars. The present study is aimed at finding the effectiveness of e- based concept mapping techniques on achievement and study habit of students for the topic 'Genetics' in Zoology at plus two level. Fifty samples are taken up for the Experimental Group which is exposed to e – based concept mapping and fifty samples for control groups which in taught through conventional Talk and Chalk method pre – test and post test are administered. The results are statistically analyzed and interpreted. The findings have revealed that students exposed to the e – based concept mapping technique excels the students who are taught through the conventional method.

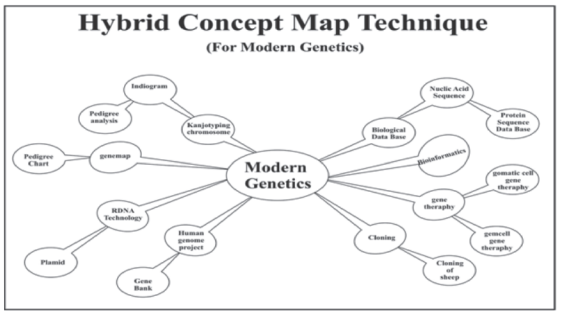
Key words: Effectiveness technique, e – based concept mapping achievement and study habit higher secondary level.

INTRODUCTION

Meaningful sensation paves way for the concept formation. With the advent of ICT e – Learning of gains momentum to accommodate a wide range of concept maps in terms of economy and variety. It can be used as an open – ended learning tool which could cover all the learning phases. Indeed e-based concept mapping is an alternative instructional tool to improve the effectiveness in learning of students at higher secondary level for the subjects such as Biology and zoology when compared with the traditional approach like block board of operation and distasteful lecture method. This study has also brought to light there is a moderate level correlation between the achievement of students and the study habit of the students in respect of the subject zoology relation to the students studying at plus two level.

USES OF E – BASED CONCEPT MAPS

Concept map could serve as a Virtual guide. It is capable at capturing the attention of the learners. Inter linked images can be created to provide as many illustrations as possible so that a desired learning activity can be accelerated. Rapport can be well Established between the tutor and the students. Learning gains momentum when students centred activities through drawing plenty of concept maps with the help of media. This enables the learner to pay attention to structured network of knowledge to reach perfection. This type of learning is not a closed set but open – ended one, to expand the knowledge base. Individualized learning becomes primary and group learning secondary. There can be a strange blend of formal and informal learning, which could provide enormous learning resources. It can also be called as a new multi-media technology which could boost the quality of learning to establish tempered and spatial relationship.



NEED FOR THE STUDY

Creativities blooms at the portals of schools and

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e – based concept mapping goes beyond the conventional concept mapping technique. For the subject like Biology, it can provide the platform for note making note talking and summarizing from the major. minor and sub concepts or the source materials. As a result of the above mentioned points, there is a need to do this study. The figure is network pertinent to the topic 'modern Genetics' in zoology in respect of e-based concept mapping at creation level. Even web-based technology can be transformed into e-learning programmes using learning management systems (LMS).

OBJECTIVES OF THE STUDY

1. To find out the effectiveness of the developed e – based concept mapping Technique on the achievement of the students for the topic 'Genetics' in Zoology studying at Higher Secondary level.
2. To find out the effectiveness of the e – based concept mapping Technique on the 'study Habit' of the students for the topic 'Genetics' in Zoology studying at Higher Secondary level.

HYPOTHESES OF THE STUDY

1. There is no significant difference in the Pre – test achievement level between the Experimental Group which is exposed to the e – based concept mapping Technique and the Control Group which is taught through the conventional talk and chalk method at Higher Secondary level.
2. There is no significant difference in the Post-test achievement level between the Experimental Group which is exposed to the e-based concept mapping Technique and the control Group which is taught through the conventional 'Talk and Chalk' method at Higher Secondary level.
3. There is no significant relationship in post test achievement level of the Experimental Group which is exposed to the e- based concept mapping technique on the 'Study Habit' at Higher Secondary level.

METHODOLOGY

The investigator has used Experimental method. He has made use of 100 samples from two different Higher Secondary schools, in the Thiruchirapalli district.

SAMPLES OF THE STUDY

With the help of random sampling technique a sample of 100 students (50+50) who are studying in the Biology group at plus two level, Fifty students are considered to be experimental group who are exposed to the developed e-concept and another 50students are considered to be control group who are taught through the conventional talk and chalk method.

TOOLS IN THE STUDY

The investigator along with the research supervisor has developed an Achievement Test paper and scoring key, to gauge the Achievement in the right perspective for 50 marks covering new test items.

He has also developed a 'Study Habit' scale to correlate the achievement of the students who are exposed to the e-based concept mapping. Which consists of 40 statement using like five point scale such as strongly agree, agree, undecided, Dis Agree and strongly Disagree.

Administration of pre-test and post –test achievement of the two groups

After the establishment of the validity and reliability the pre-test for the two groups is conducted. After the treatment through the techniques post test is administered.

STATISTICAL TECHNIQUES ADOPTED

The investigator has made use of the following statistical techniques

1. Descriptive statistics mean and standard deviation.
2. Differential analysis 't'-value.
3. Correlational analysis Pierson's product moment correlation.

DATA ANALYSIS AND INTERPRETATION

Testing of hypothesis are carried out with the help of tables and graphical representations and the corresponding interpretation are also written.

HYPOTHESIS:1

There is no significant difference in the pretest achievement level between the Experimental group which is exposed to the developed e-based concept mapping technique and the control group which is exposed to taught through traditional method at higher secondary level.

COMPARISON BETWEEN CONTROL GROUP AND EXPERIMENTAL GROUP OF THE MEAN SCORES OF PRE TEST ACHIEVEMENT FOR THE TOPIC MODERN GENETICS

Table 1: Showing the Mean, Standard Deviation and 't -Test' value of Experimental group-I which is exposed to the e-based concept mapping technique and the Control group which is taught through conventional method at higher secondary level.

TABLE -I

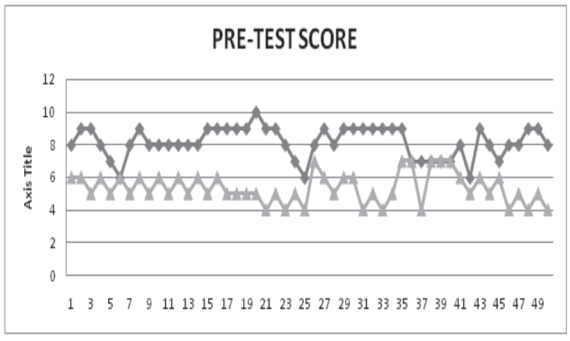
Variable	Group	N	Mean	Standard Deviation	't' – test value
MODERN GENETICS	Control Group	50	6.25	1.23	0.596
	Experimental Group	50	9.63	4.23	

Not Significant at 0.05 levels.

The table value of 't' at 0.05 level of significance is 1.960

The calculated value of t = 0.596 is not significant at 0.05 level of significance. It is inferred that there is a significant difference between the Experimental group which is exposed to the developed e-based concept mapping technique and the control group which is exposed to taught through conventional method at higher secondary level.

Fig.1: Showing the performance of Experimental group which is exposed to the e-based concept mapping technique and the Control group which is taught through conventional method at higher secondary students in their pre-test achievement level.



HYPOTHESIS:2

There is no significant in the post test achievement level between the experimental group which is exposed to the developed e-based concept mapping technique and the control group which is taught through traditional talk and chalk method at higher secondary level.

COMPARISON BETWEEN CONTROL GROUP AND EXPERIMENTAL GROUP OF THE MEAN SCORES OF POST-TEST ACHIEVEMENT FOR THE TOPIC MODERN GENETICS

Table 2: Showing the Mean, Standard Deviation and 't -Test' value of Experimental group which is exposed to the e-based concept mapping technique and the Control group which is taught through conventional method at higher secondary level.

TABLE - 2

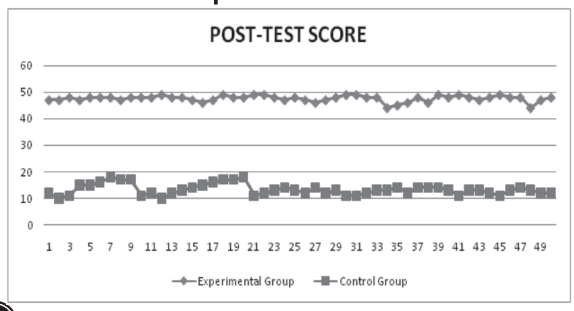
Variable	Group	N	Mean	Standard Deviation	't' – test value
MODERN GENETICS	Control Group	50	13.31	2.04	4.974
	Experimental Group	50	47.58	1.18	

It's Significant at 0.05 levels.

The table value of't' at 0.05 level of significance is 1.960

The calculated value of t = 4.974 is significant at 0.05 level of significance. It is inferred that there is a significant difference between the Experimental group which is exposed to the developed e-based concept mapping technique and the Control group which is taught through conventional method at higher secondary level.

Fig.2: Showing the performance of Experimental group which is exposed to the e-based concept mapping technique and the Control group which is taught through conventional method at higher secondary students in their post-test achievement level.



HYPOTHESIS:3

There is no significant correlation between the achievements of the students on "Genetic" between the Experimental group which is exposed to the evolved "e-based concept mapping technique" on the "Study Habit" at higher secondary level.

CORRELATION BETWEEN EXPERIMENTAL GROUP OF THE MEAN SCORE OF PRE-TEST ACHIEVEMENT FOR THE TOPIC MODERN GENETICS ON "STUDY HABIT"

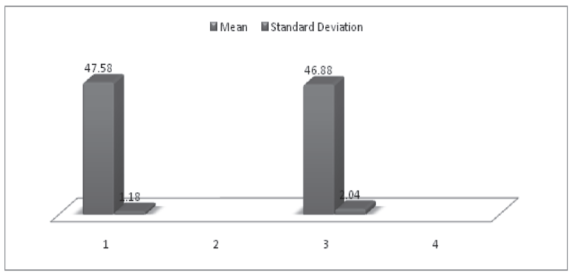
Table 3: Showing the Mean, Standard Deviation and Correlation 'r' value of the achievement of the students on "Genetic" between the Experimental group which is exposed to the evolved "e-based concept mapping technique" on the "Study Habit" at higher secondary level.

TABLE -3

Variable	Group	N	Mean	Standard Deviation	Correlation "r" value
Experimental group	e-based concept mapping technique"	50	47.58	1.18	0.471
	Study Habit	50	46.88	2.04	

Significant level 0.05, Table value 0.095

If correlation r = 0.471, It is inferred that, There is moderate level correlation between the achievement of the students on "Genetic" between the Experimental group which is exposed to the evolved "e-based concept mapping technique" on the "Study Habit" at higher secondary level.



MAJOR FINDINGS OF THE STUDY

It is found that e-based concept mapping technique is more effective than the traditional talk and chalk method in respect of the topic Genetic's in Zoology at higher secondary level. In other words the former technique works better, faster and cleaner than the later method to bring above desired academic achievement of the learner. It is also disclosed that the impact of e-based concept mapping technique has developed moderate correlation on the "Study Habit" of the students at higher secondary level.

EDUCATIONAL IMPLICATIONS

1. The achievement of students in zoology can be improved by means of e-based concept mapping technique at higher secondary level.
2. Within stipulated time the students can make the distinction between main concepts, minor concepts and sub concepts of the content.
3. The habit drawing concept maps will help the students to augment study habit.
4. A good rapport can be established between the tutor and the student.
5. This technique could boost the morale of the students to bear and face the changes and challenges in the learning environment.

CONCLUSION

This study has the fascination revelation that e-based learning technique works faster, cleaner and smarter than the conventional talk and chalk method. Students learn things by doing themselves they learn the trick of breaking the raw content or a single idea easily digestible particles or sub concepts study habits among the students will also get a face lift through this novel technique.

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