

CHAPTER V

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CHAPTER V

SUMMARY, SUGGESTIONS AND CONCLUSIONS

INTRODUCTION

Science and technology are playing an important role in our lives. They have become an integral part of our social and cultural life. Various activities are controlled and governed by science. It has helped man to acquire supermacy over nature.

we can conclude that

1. Science is study of natural phenomenon.
2. It is an organized and systematized learning.
3. It is a body of cumulative and ordered observations.
4. It is the knowledge based on observation, experiment and inference.
5. Science is a process as well as the product of that process.

It always remains in search for truth.

In this modern age, the psychological view point tells that the study of any subject cannot be successful and complete unless it is based on the age, characteristics and needs of the child . Thus in the field of science along with its content, teaching methods play an important role.

“ In the absence of the correct directions/ true path, a person can not reach his destination, in the same way in the absence of proper method, the student cannot be given correct knowledge.”

Concept mapping is the new method for teaching science and researcher is using this method of concept mapping to check its effect on achievement in physics of XIth standard students.

The application of concept map approach in science falls in to three groups as contributing to

4. The understanding of processes and relationship;
5. The appreciation of the social significance of science
6. The understanding of industrial and commercial applications.

Today we are facing the problem of school management and class control. By introducing the technique of concept mapping we can control the class of talented as well as average childrens. By introducing the students involvement in the teaching learning. If we think of concept mapping technique it is one of the best technique to involve students in teaching learning.

Due to this researcher used Concept mapping as a new strategy for teaching learning, and researcher studied the effect of concept mapping technique on achievement of XIth standard students.

In this chapter the brief summary of research work is written. The results of this research and the suggestions given are discussed in this chapter.

STATEMENT OF THE PROBLEM

Effect of Concept Mapping in Science on Achievement in Physics for XI standard students – A Study

Definitions Of the terms used in title

Concept-

Conceptual Definition

An idea or representation of the common element or attribute by which groups or classes may be distinguished, a thought, an opinion, an idea or a mental image. (Good C. V.)

Operational definition

For the purpose of this study concept is an idea, rule, formula, units, conversions and experiments involved in Physics syllabus of XI standard prescribed by the state government of Maharashtra.

Mapping

Conceptual definition

A correspondence established between the members of one set and the members of another usually synonymous with function and transformation; for some writers, the term mapping carries a geometric connotation in contrast to any algebraic description which might be given for the correspondence. (Good C. V.)

Operational definition

For the purpose of this study mapping is Geometric arrangements of concepts included in syllabi of XIth standard Physics subject.

Achievement

Conceptual definition

Accomplishment or proficiency of performance in a given skill or body of knowledge. Knowledge attained or skills developed in the school subjects usually designated by test scores or by marks assigned by teachers or by both. (Good C. V.)

Operational definition

For the purpose of this study achievement is nothing but the Scores of XIth standard students in the achievement tests prepared by Researcher.

Physics

Conceptual definition

The branch of physical science that is concerned with matter and energy, including the study of phenomenon associated with mechanics, heat, wave motion, sound, electricity, magnetism, light and atomic and nuclear structure. (Good C.V.)

Operational definition

For the purpose of this study it is Subject involved at the Higher secondary level specially in the syllabi prescribed by state government of Maharashtra for XIth standard of Science stream.

Concept Mapping

Conceptual definition

concept mapping is defined as a technique for representing knowledge in diagrams called 'knowledge graphs', which are networks of concepts with relationships between them represented respectively by nodes and links. Concepts and sometimes links are labeled and links can be non-, uni- or bi-directional.

Operational definition

For the purpose of this study Concept maps are diagrammatic representation which show meaningful relationship between concepts in the form of propositions which are linked together by words, circles and cross-links concepts are arranged hierarchically.

OBJECTIVES

- 1.To analyze the Physics syllabus for the selection of XI standard units for concept mapping
- 2.To implement concept mapping as a strategy for teaching selected units in the physics at XI standard.
- 3.To design concept maps on selected units in physics of XI standard.

4.To study the effectiveness of concept mapping as a teaching strategy in science on achievement in physics.

ASSUMPTION

- 1.Concept mapping as a teaching strategy can be used in science teaching.
- 2.Concept mapping as a teaching strategy is useful to increase students achievement.
- 3.Concept maps can be developed on certain units in physics.

HYPOTHESES

Null Hypotheses

- 1.There is no significant difference in the achievement scores of pretest of experimental and control group.
2. . There is no significant difference in the achievement scores of pretest and posttest of control group.
3. There is no significant difference in the achievement scores of pretest and posttest of experimental group.
4. There is no significant difference in the achievement scores of posttest of experimental and control group.
5. There is no significant difference in the achievement scores of pretest of Boys and Girls.
- 6.There is no significant difference in the achievement scores of posttest of Boys and Girls.

Research Hypothesis

1. Concept Mapping is an effective teaching strategy for teaching science.

LIMITATIONS

The study is limited to

1. XIth standard Physics syllabus prescribed by the state Government of Maharashtra.
2. XIth standard students which have Marathi as mother tongue.
3. present study is limited for academic year 2007-08
4. certain concepts included in physics syllabus of XIth standard.
5. two junior colleges attached to secondary schools.

RESEARCH METHODOLOGY

The experimental design used for the present research work is given as follows

Quasi experimental designs

The pretest – posttest Nonequivalent group design

O ₁	X	O ₂	O ₁ O ₃ = Pretests
O ₃	C	O ₄	O ₂ O ₄ = Posttests

The researcher administered Achievement test as pre test for both colleges and during experiment researcher designed concept maps with the help of students in experimental group. In this process researcher write some of the points related to selected concepts and ask students to correlate them in such a way that they represent meaningful relationships between concepts

in the form of propositions and the more general, more inclusive concepts should be at the top of the map, with progressively more specific; less inclusive concepts arranged below them.

In this process researcher used the process of brainstorming and correlate these points properly.

After this these concept maps are checked by experts and then they are used for guiding the students and along with this Maharashtra college (Control Group) by regular method of teaching and again administered achievement test as post test for both colleges and collected the necessary data as per requirement was collected.

SAMPLE

For this research researcher select two junior colleges from kolhapur city by purposive sampling method. And divisions are selected by simple random sampling i.e. lottery method.

TOOLS

In this research work researcher used questionnaire (achievement test) as a research tool, which is prepared on his own.

SCOPE OF THE STUDY

In support of scope of the study Whitney says- “It will provide information concerning, who, what, where and how many. To define a problem means to put a fence around it to separate it, by careful distinction from like questions, found in related situations of need.”

The study will cover institutions conducting higher secondary schools and junior colleges in kolhapur city of Kolhapur district.

In this researcher will deal with the selected concepts of XI physics.

SIGNIFICANCE OF THE RESEARCH

Science is a foundation of higher education hence it is obvious that the teaching of science at secondary level has beyond doubt importance. If no significant plans are taken to ensure the perfection in teaching science it will create problems for the students in the future education. Since secondary education is base of higher education it carries great importance.

By conducting experiments In the secondary education system if positive results are achieved. It will be useful in the future curriculum setting as well as the text setting with use of concept mapping. While appointing the science teacher the management may think of making concept mapping knowledge as an essential factor. This will encourage the student in self learning process. It will help student to get rid of unwanted fear of the subject in his mind and misconcepts about the subject.

The teacher also face different problems in selection and use of proper teaching aid, teaching tools and teaching methods for different topics in physics. So this is an attempt to make a comparative study to find the effectiveness of teaching physics by concept mapping and traditional method.

Result of this study will be useful to the teachers of XI standard, B.Ed. trainees, Teacher educators, parents, government authorities such as educationalist.

CONCLUSIONS

1. Control group and Experimental group are identical.

Because both groups are from Marathi Medium and they are learning in Junior colleges which are attached to high-schools.

2. There is increase in achievement of control group.

This implies that conventional methods are also useful.

3. The concept mapping technique is more useful than the conventional methods of teaching this is supported by **Sahjahan, N.M. in his Ph. D. work** that the modular way of learning is more effective than the conventional method.

3. Comparing Experimental and control group it is clear that concept map can be used as a study tool. This conclusion is in conformity with the study of Boujaoude and Attieh (2007)

3. Difference in achievement is indicative of the students increase in concept understanding.

4. While learning through concept mapping technique, no significant difference was found out between Boys and Girls. It is found that the achievement in physics doesn't depend on sex difference.

RECOMMENDATIONS

1. Teacher should use concept mapping method for teaching physics.
2. Teacher should use various new methods and techniques like concept mapping method to create interest in students in learning physics.
3. Teacher educators should introduce concept mapping method for trainee teachers of science methodology.
4. Educationist should introduce concept mapping method in the curriculum of B.Ed. for science methodology.
5. Educationist should prepare curriculum of science subjects based on concept mapping method.
6. Principals or Heads of educational institutes should arrange workshops for science teachers which enable them to know, understand and apply concept mapping method in day to day teaching.

SUBJECTS FOR FURTHER RESEARCH

1. Research can be conducted on the whole syllabus of physics of XIth standard.
2. Research can be conducted on the whole syllabus of Chemistry of XIth standard.
3. Research can be conducted on the whole syllabus of Biology of XIth standard.
4. Research can be conducted on the whole syllabus of physics of XIIth standard
5. . Research can be conducted on the whole syllabus of Chemistry of XIIth standard.
6. Research can be conducted on the whole syllabus of Biology of XIIth standard.
7. Research can be conducted on the whole syllabus of 9th standard and 10th Science syllabus.