

Application of Concept Map

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INTRODUCTION

Strategic management is continuous process of strategic analysis, strategy creation, implementation and monitoring, used by organizations with the purpose to achieve and maintain a competitive advantage. Concept mapping strategy is referred by researchers for research subject. Research is one of the important subjects of teacher education therefore it is included at every stage of teacher training. For D.Ed. it is included as an introductory subject. For M.Ed. level it is taught as compulsory subjects at all levels but it is introduced at B.Ed. level as one of the elective paper since 2008 named Introduction to Research Methodology.

Many of the students offer different elective subjects instead of Introduction to Research Methodology as they find difficulties in getting concepts of the subject. It is known that research is the soul of teaching profession. Teachers have to face many problems regarding curriculum, teaching methods, behavioral problems of the students etc. There is also a need to solve these problems. But if they are solved by scientific methods, it is not only beneficial to that particular teacher but will be a guideline for others also. So knowing basic concepts of research methodology is the need of every teacher.

On the other hand it is observed that many of the students opting research methodology find problems memorizing the concepts of research as it is a technical subject. Therefore the researchers have decided to use concept map for memorizing the concepts.

Theory of Concept map

A concept map is a type of graphic organizer used to help students organize and represent knowledge of a subject. Concept maps begin with a main idea (or concept) and then branch out to show how that main idea can be broken down into specific topics.

In a Concept Map, the concepts, usually represented by single words enclosed in a rectangle (box), are connected to other concept boxes by arrows. A word or brief phrase, written by the arrow, defines the relationship between the connected concepts. Major concept boxes will have lines to and from several other concept boxes generating a network. There are many sites on the internet that provide additional background on Concept Maps of which the following are a few.

How to Build a Concept Map

Concept maps are typically hierarchical, with the subordinate concepts stemming from the main concept or idea. This type of graphic organizer however, always allows change and new concepts to be added. The Rubber sheet analogy states that concept positions on a map can continuously change, while always maintaining the same relationship with the other ideas on the map.

Start with a main idea, topic, or issue to focus on.

A helpful way to determine the context of your concept map is to choose a focus question- something that needs to be solved or conclusion that needs to be reached. Once a topic or question is decided on, that will help with the hierarchical structure of the concept map.

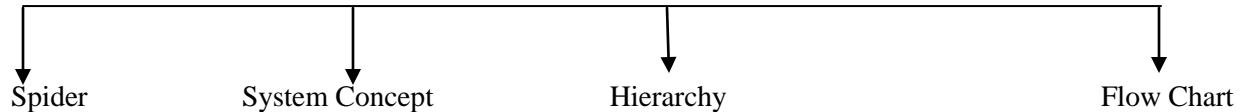
Then determine the key concepts

Find the key concepts that connect and relate to your main idea and rank them; most general, inclusive concepts come first, then link to smaller, more specific concepts.

Finish by connecting concepts-creating thinking phrases and words

Once the basic links between the concepts are created, add cross-links, which connect concepts in different areas of the map, to further illustrate the relationships and strengthen students understanding and knowledge on the topic.

Types of Concept Map



Benefits of Concept Map

- Helps visual learners grasp the material
- Helps students see relationships between ideas, concepts, or authors
- Utilizes the full range of the left and right hemispheres of the brain
- Helps memory recall
- Helps to clarify and structure ideas
- Aids in developing higher-level-thinking skills (create, analyze, evaluate)
- Helps students synthesize and integrate information, ideas and concepts
- Encourages students to think creatively about the subject
- Lets students to self-evaluation of beliefs, values, socialization etc.
- Concepts can be clarified and can be arranged in a systematic order.
- This helps teachers to convey a clear general picture of the topics and their relationships to their students.
- Reinforce understanding. Using concept maps can reinforce students' understanding and learning more easily. Check learning and identify misconceptions.
- The use of concept maps can also assist teachers in evaluating the process of teaching. They can assess the students' achievement by identifying misconceptions and missing concepts.
- Concept mapping is also gaining inroads as a tool for problem-solving education.

Limitations of Concept Maps

- 1) One of the disadvantages of utilizing concept maps is the learning curve. While some people may pick up on the elements and components quickly, others may not. Each of the different boxes, circles, triangles, squares, rectangles and other shapes used has specific meaning. Unless someone is familiar and is able to remember those meanings, then the different shapes can lead to more questions and confusion rather than helpful information when trying to convey ideas through a concept map.
- 2) Concept maps are limited in that they can hamper the process of solving new or novel problems that have not previously been explored.
- 3) Concept maps represent only three different learning styles: logical-mathematical, visual-spatial and linguistic.

Concept Maps in education

When created correctly and thoroughly, concept mapping is a powerful way for students to reach high levels of cognitive performance. A concept map is also not just a learning tool, but an ideal evaluation tool for educators measuring the growth of and assessing student learning. As students create concept maps, they reiterate ideas using their own words and help identify incorrect ideas and concepts; educators are able to see what students do not understand, providing an accurate, objective way to evaluate areas in which students do not yet grasp concepts fully.

OBJECTIVES

- 4) To implement concept mapping approach for learning research concepts.
- 5) To study the effectiveness of concept mapping approach for learning research concept.

FUNCTIONAL DEFINITIONS

Concept map – Concept map refers to the system concept map

B.Ed Students – B.Ed Students who have taken introduction to Educational Research as an elective subject.

SCOPE AND LIMITATIONS

This research is applicable for B.Ed students who have taken Introduction to Research Methodology as an elective subject. The scope of this research is restricted to Modern College of Education, Pune. B.Ed Students.

Part II

REVIEW OF RELATED LITERATURE

Researchers had gone through research work related to concept mapping. Classification: Thesis, Books, Projects, Periodicals, Websites and Newspapers cuttings

Related Articles

1. A Collaborative Literature Review of Concept Mapping- Robert Abrams
2. A Summary of Literature Pertaining to the use of Concept Mapping Techniques and Technologies for Education and Performance Support – Alberto J. Canas
3. Concept mapping – exploring its value as a meaningful learning tool in accounting education – Jayne D. Maas
4. Concept mapping in problem based learning: a cautionary tale – Alex H. Johnstone and Kevin H. Otis
5. Concept Mapping in Science Class: A Case Study of fifth grade students – AskinAsan
6. How to Develop a Concept Map in Research – Lesley Graybeal
7. Problems and issues in the use of concept maps in Science assessment – Maria Araceli Ruiz and Richard J. Shevalson
8. The Effect of Using Concept Maps as Study Tools on Achievement in Chemistry – SaoumaBouJaoude and May Attieh
9. Using Concept Mapping to Enhance the Research Interview – Ian M. Kincin
10. Using Concept Maps in the Science classroom – Jim Vanides, Yue Yin, Miki Tomita and Maria Araceli Ruiz-Primo

Part III

Research Methodology

Sample and Research Methodology

Students of Modern College of Education, Pune. 5 who have taken Introduction to Educational Research as an elective subject were selected.

Method used for sample selection was purposive sample.

2) Students – 44

3) Teachers-2

Research Methodology

Experimental method was selected. Single group pre-test post-test design was used.

Tools of Research

A) Pre-test – Post-test B) Questionnaire – Students C) Interview – teachers

Procedure

After finalizing the research topic the researcher approached the collage authorities for getting permission, Selection of sample, Pre- test question paper, questionnaire Students as well as interview questionnaire foe teachers were set.

Pre-test was conducted for B.Ed class depending on pre-test results, post-test was conducted.

Data was analyzed

Part IV

Data Analysis

The research questions that we were trying to answer with this action research were, will the use of concept map improve achievements in concept of historical research method?

Sr. No.	Name of the Students	Pre-test	Post-test	Sr. No.	Name of the Students	Pre-test	Post-test
1	Agnihotri Prajakta	7	9	23	Kherade Sampada	4	8
2	Atale Poonam	4	6	24	Lokhande Archana	3	3
3	Bhagade Monali	3	6	25	Manohar Jayashree	4	8
4	Bhand Ashwini	4	7	26	Mengane Shreedevi	5	8
5	Bhilare Rohini	2	6	27	Muttalgiri Madhulika	2	4
6	Dani Ketaki	5	7	28	Narke Aparna	7	9
7	Desai Manisha	5	7	29	Nimje Swati	4	8
8	Deshmukh Shailaja	4	7	30	Pande Smita	7	9
9	Dhole Preeti	4	7	31	Pardeshi Manisha	2	4
10	Galande Snehal	3	7	32	Pasalkar Jyoti	3	6
11	Gandhal Jyoti	3	6	33	Pawar Swati	0	2
12	Gawali Jyotsna	4	7	34	Sabane Ashlesha	0	2
13	Gawit Vidya	4	8	35	Satpute Sushila	4	6
14	Gore Awantika	5	8	36	Shelar Priya	3	6
15	Gorlewar Snehal	4	7	37	Shintre Shubhangi	3	7
16	Hole Varsha	4	7	38	Shitole Kanchyan	7	9
17	Jadhav Pratiksha	2	4	39	Suta Neelambari	4	7
18	Jawale Neelima	4	8	40	Swami Jyoti	5	8
19	Khande Priyanka	4	8	41	Takle Bhakti	5	7
20	Kasabe Manisha	6	8	42	Tambre Priya	4	7
21	Khade Trupti	2	5	43	Vhankalas Nutan	4	6
22	Khandare Vibhuti	3	6	44	Yeolekar Rupali	3	7

Part V Conclusions and Recommendations

Root causes of problem

- Students were weak at basic concept of historical research.
- Students were weak in memorizing concepts.

Conclusions

- 33% students scored below average marks i.e. below 3.6 marks in the pre-test
- 4% students have scored zero marks in the pre-test.
- Teachers are bothered about progress of students
- Students are also aware of lagging behind but they don't know how to cope up.
- While taking pretest, it was observed by the researchers that students were restless and unstable and there was difficulties while remembering the things
- There is drastic difference in the averages of pre-test and post-test
- Using the concept map students got clear idea about memorizing the concepts.
- By comparison of pretest and posttest researchers felt that use to concept map for historical research method was effective
- Concept map was much effective by studying the concept map students' confidence level was increased.

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5. www.msu.edu
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7. www.socialresearchmethods.net
8. www.udel.edu/chem/white/teaching/ConceptMap.html