

Concept Mapping: Learning And Teaching Technique

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Abstract

Concept mapping is a technique for representing knowledge in graphs. Concept mapping is a meta-learning strategy that can be used to develop student's capacity to learn independently. The study described in this paper has examined weather concept mapping can be used to help students to improve their learning achievement. Concept maps in the selected few units of civics for Std VI students were developed. The present research study was conducted by Experimental Method. A total of 50 students of std-VI were participated in this study. Result showed that concept mapping has a noticeable impact on achievement of student in civics.

KEYWORD: Concept mapping; Concept maps; Achievement;

In this speedily changing world, the challenge of teaching is to help students develops skills which will not become outdated. Concept mapping is a meta-learning strategy that can be used to develop student's capacity to learn independently. Concept mapping is a technique that allows learners to understand the relationships between ideas by creating a visual map of the connections. Concept mapping is a technique for representing knowledge in graphs. The concept mapping technique was developed by Prof. Joseph D. Novak in the 1980's at Cornell University. A concept, defined by Novak, is regularity in objects or events or records of objects or events designated by a specific label.

Concept maps are graphical tools for organizing and representing knowledge. They include concepts, usually enclosed in circles or boxes of some type, and relationships between two concepts indicated by a connecting line linking words or linking phrases, specify the relationship between the two concepts.

Concept mapping can be done for several purposes:

- To create ideas (brain storming, etc);
- To communicate complex ideas;
- To design a complex structure (long texts, hypermedia, etc);
- To aid learning by openly integrating new and old knowledge;
- To assess understanding or diagnose misunderstanding.

In the present study researcher have to develop concept mapping technique for use in teaching learning especially suited to the study of Civics.

Statement of problem:

“Development of concept mapping for effective teaching of Civics to standard VI students”

Objectives: The study is under taken with the following objectives.

1. To develop concept mapping for effective teaching in the selected units of civics for Std. VI students.

Selected units are The Gram Panchayat; The Panchayat Samiti; and The Zilla Parishad.

2. To implement developed concept mapping for effective teaching in the selected units of civics for Std. VI students.
3. To find out effectiveness of developed concept mapping after implementation, on the achievement of students.

Review of related literature:

This idea of concept mapping has been shown to work by enabling students to make visual connections between information and thus helping them to better understand the subject (Aidman & Egan, 1998). Aidman et al. (1998) found that the idea of using concept mapping demonstrated that the knowledge retained by students was “accurate and meaningful”. Concept mapping has also been demonstrated as a tool to enhance reading comprehension. Chang, Sung, and Chen (2002) found that incorporating concept mapping helps to improve text comprehension in fifth grade students. The idea of whether it is better for readers to be supplied with concept maps already constructed by experts versus students creating original concept maps was brought into question by Chang, Sung, and Chen (2002).

In science education, concept mapping has been widely recommended and used in a variety of ways. It has been used to help teachers and students to build an organized knowledge base in a given discipline (Pankratius, 1990) or on a given topic (Kopec, Wood & Brody, 1990). It has been used to facilitate middle level students’ (sixth, seventh, and eighth grade) learning of science content (Guastello et al., 2000; Hawk, 1986; Ritchie & Volkl, 2000; Simmons et al., 1988; Willerman & Mac Harg, 1991; Sungur et al., 2001; Duru and Gurdal 2002). Findings from these studies indicate that the concept mapping is an effective tool for aiding student comprehension and retention of science material. Additionally, students using concept maps scored higher on posttests than students receiving more traditional types of instruction.

Research Hypothesis:

There is significant difference between the mean achievement test score of experimental and control group after implementation of concept mapping.

Null Hypothesis:

There is no significant difference between the mean achievement test scores of experimental group and control group after implementation of concept mapping.

Delimitations of the study:

- The sample comprised the students of Abhinav Education society’s English medium School, Ambegaon (BK), Pune.
- Students who remained present at the time of data collection were included in the sample.

Methodology:

Sampling:

The sample of the study consisted of 50 students studying in Abhinav education society’s English medium school, Ambegaon (BK), Pune. Incidental sampling has been used for this research. Experimental and Control were the two groups in the sample. There were 25 students each group.

Experimental Design:

The present research study was conducted by Experimental Method. Two Equivalent Group design (Pretest-Post test Control Group Design) was used.

$$R_1 \rightarrow O_1 \rightarrow X \rightarrow O_2$$

$$R_2 \rightarrow O_3 \rightarrow C \rightarrow O_4$$

In this design:

1. Students were divided to two groups. Two equivalent groups of 25 students were made from the scores of pretest.
2. Experimental group received the experimental treatment (X), which was implementation of developed Concept Mapping.
3. Control group were not received treatment (C).
4. Both group received pretests (O_1, O_3).
5. Both group received posttest (O_2, O_4).

Tools used for Research:

1. Pretest and post test for testing achievement.
2. Concept mapping tool developed by researcher on following topics for effective teaching of civics for Std. VI students.
 - The Gram Panchayat;
 - The Panchayat Samiti;
 - The Zilla Parishad.

Statistical Tools used for Research:

Mean, Standard Deviation, t-test.

Development of Concept maps:

The proper procedure for creating concept maps and how they can be applied to organize information will be modeled for the students. Researcher selected The Gram Panchayat, The Panchayat Samiti, and The Zilla Parishad topic for this study. Researcher developed concept mapping on The Gram Panchayat. Concept maps for the rest of topics were constructed with the help of students.

An overview of the steps involved in the concept mapping process:

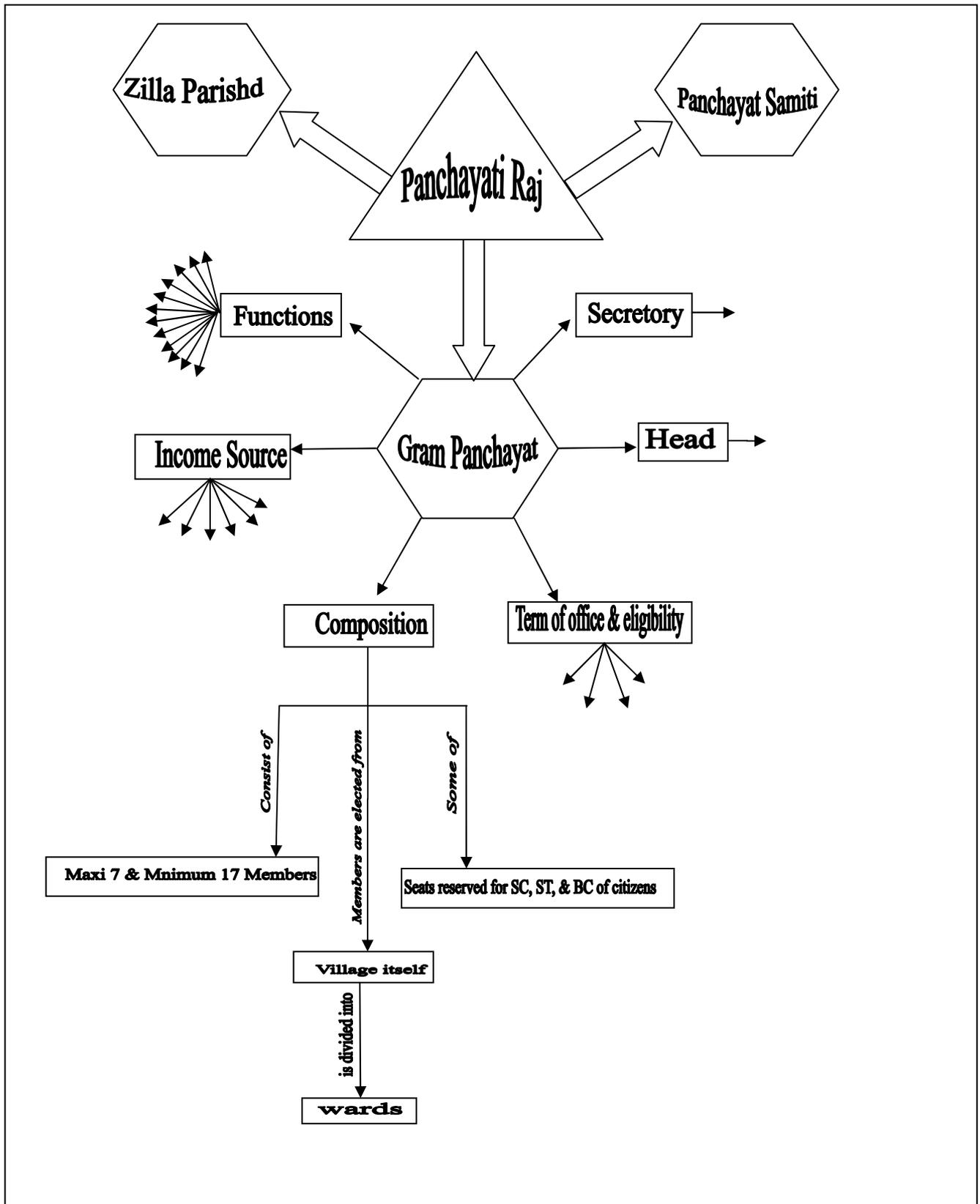
- Preparation ;
- Generation of Statements;
- Structuring of Statements;
- Representation of Statements;
- Interpretation of Maps;
- Utilization of Maps.

Reliability and Validity of tool:

To ensure the reliability of developed tool a test-retest method was used. The reliability coefficient was 0.8 with regard to validity the content validity was adopted. For this purpose, researcher studied some concept mapping examples on internet. Also she discussed with History and Civics method's Professors and teachers. The developed concept was administrated to two expertise and four experienced teachers of Civics subject. Tool was redeveloped on the basis of these expertise's and teacher's proposed suggestions and comments.

The developed Concept mapping is shown in following figure-1.

Fig. 1-Concept mapping of Panchayati Raj:



Data analysis:

The researcher has analysed the data using following formula, in stepwise manner given below.

Table-1

Data and result of the Test of Significance of difference in mean Scores of the Concept Mapping and Traditional Methods on the mean achievement test scores of experimental group and control group after implementation of concept mapping.

Group	N	Mean	S.D	df	't' Value	Result
Experimental	25	24.48	0.57	24	7.41	Significant at 0.01 level
Controlled	25	19.56	3.21			

Conclusion:

The major conclusion drawn is given bellow.

- The mean of experimental group is greater than that of controlled group. Therefore the developed concept maps have found to be effective.
- The concept map for teaching/learning of a topic The Gram Panchayat, The Panchayat Samiti, and The Zilla Parishad to Std. VI students is found to be effective.

Educational implication of the study:

Through this approach a joyful and meaningful learning is guaranteed. Concept mapping encourages learners to participate actively in teaching learning process. It is seen in this study, concept map is used as a way for teaching a lot of difficult complex concepts and knowledge in Civics. The result of the study support concept mapping is effective teaching technique which helps to engage students in learning and recalling their own knowledge structures. In addition, concept mapping was a successful tool in helping low achiever students to improve their grades. Using concept mapping tools in Civics classes will help students to develop better understanding of important concepts. The biggest challenge for Civics teacher is changing teaching approaches to incorporate what we know about effective and meaningful learning.

In summary, this study indicates that concept maps can effectively promote learning of students and thus, can be added to the teaching strategies of civics teachers. The maps contribute to student success, foster a long-term change in thinking, and contribute to changing students learning strategies. Concept mapping can provide alternatives to traditional methods. As the present student are going to become citizens of tomorrow, when they are provided environment to develop concept maps in Civics , the good citizen characters in them will automatically improved.

References:

Best J.W., Khan J. V. (2002). "Research in Education." (7th Ed) New Delhi; Prentice Hall of India Private Limited.

Novak J, Gowin B. D. (1984). "Learn how To Learn", Cambridge University Press, USA.

www.socialresearchmethods.net/kb/conmap.php