



## **COGNITIVE MAP IS AN OUTCOME OF MEANINGFUL LEARNING THROUGH READING - A CONSTRUCTIVE WAY OF EVALUATION**

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### **ABSTRACT**

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*Present paper focuses on meaningful learning through reading, reading types and cognitive map. It emphasises reading is one of the constructive ways of learning. Using reading type's researcher has developed reading plan to construct cognitive map which is the outcome of learning through reading activity. Creating cognitive map is higher level cognitive performance. It helps the students to develop their meta-cognitive skills*



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### **Introduction:**

According to National curriculum framework 2005 meaningful learning is a generative process of representing and manipulating concrete things and mental representation rather than storage and retrieval of information. All children are naturally motivated to learn and are capable of learning. Making meaning and developing the capacity for understanding and abstract thinking are the most important aspects of learning. Children learn in a variety of ways –through experience, making and doing things, experimentation, discussion, asking, listening, thinking, expressing oneself in speech, reading and representing; out of these ways reading and representing is one of the constructive ways of learning

### **Reading:**

Reading is a self-regulatory activity guided by teachers. It is a cognitive process of decoding symbols in order to construct or derive meaning. Reading activity is more useful for a student who's verbal and intuitive learning styles are prominent. Learning style is a term generally used to describe an individual's natural or habitual pattern of acquiring and processing information in learning situation. Ideas of learning styles originated in 1970 and acquired tremendous popularity. Proponent for the use of learning style in education said that teachers should assess the learning styles of students and create proper learning environment for individual. According to Felder's learning style revised index in 2002, learners prefer reading conceptual innovative and theoretical information and they look for explanation with words.

Reading gives learning autonomy for learners. Reading makes learner self- responsible for learning. Reading enables the learner to mentally interact with content. It enables the reader to turn writing into meaning and achieve goal independence, Comprehension, self- reliance, and responsible. Independence is the ability to function in a given area without depending upon another help. Independence in reading is the ability to read and understand in his or her language without depending upon other's help. Comprehension is the ability to grasp something mentally and the capacity to understand ideas and facts and relationship between them. While reading content reader is totally responsible for his/ her action, responsibility cannot be divided. Children need to learn rely on them to trust their personal abilities. Reading makes the children self-reliant.

Textbook is a tool for reading and it is main resource of learning. Teacher's basic assumption about text book is, it is valid resource of teaching and learning. Popular perception treats text book as the prime site for syllabus. Those are carefully written and designed, professionally edited and tested factual information in the form of all types of content like statements, definitions, concepts, generalisation, rules, laws, principles, phenomena. The relationship between high speed classroom teaching students' grasping level and difficulty level of content is the major source of stress can be weakened if students are motivated for self - regulatory reading strategy.

### **Reading Types:**

Many educationists suggested reading skills; those are nothing but reading types. Reading types give idea about path of reading from general to specific. Each type has a unique purpose to serve. These reading types are a journey from shallow to deep understanding of subject. Following are the types of reading-

#### **Skimming:**

In this type person has to read only headings, introduction and summaries for shallowest knowledge of subject.

#### **Scanning:**

Quickly gathering more and more information is nothing but scanning. This type gives the moderate level of subject understanding.

#### **Extensive reading:**

It is an active reading for general understanding of subject. Student can make his/her own table of content. Screening takes place in extensive reading.

#### **Intensive reading:**

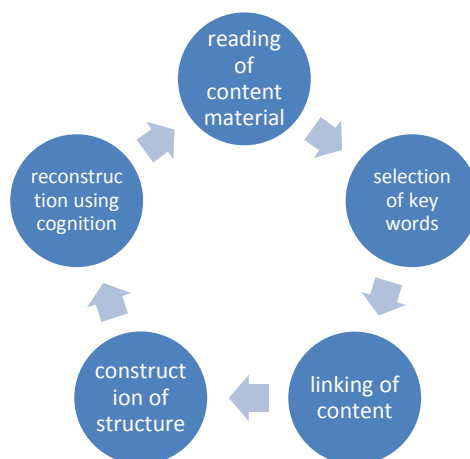
It is accurate reading for details. It is an extraction of specific information. Intensive reading enhances metacognitive skills to organise information in the form of map. Intensive reading leads the student to level of abstraction.

At secondary level all social science and science syllabus is full of different forms of content like concepts, facts, generalisations, definitions, processes and principles etc. Cognitive maps include all forms of content when it is constructed. Cognitive mapping is a constructive learning strategy or tool to enhance meaningful learning can be developed through reading.

**Cognitive mapping:**

Cognitive map is a device for representing the conceptual structure of a subject in a two dimensional form which is analogous to road map. This learning strategy was developed by J.D. Novak in 1980 and was derived from Ausubel’s meaningful learning. Cognitive mapping demands clarity of meaning and integration of crucial details. The process of constructing a cognitive map requires intensive reading to think in multiple directions and to switch back and forth between different levels of abstractions. In attempting to identify the key and associated concepts of particular topic or sub topic, one will usually acquire a deeper understanding of the topic and clarification of any prior misconception. Novak and Symington in 1982 found that concepts maps are not only useful tool to represent knowledge structure of students but also help them to learn how to learn meaning fully. They also found that cognitive maps are useful in representing the knowledge in any discipline and aid in organising and understanding new subject matter.

**Steps involved in development of cognitive mapping:**



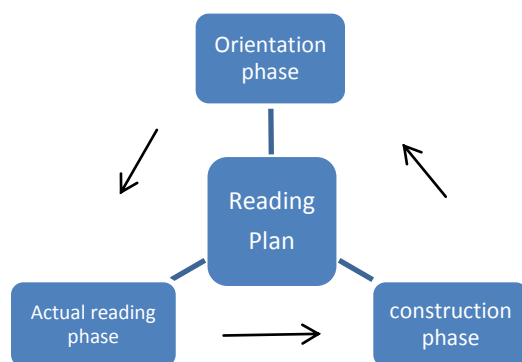
All these are student’s cognitive activities to frame cognitive map of content using and modifying their existing cognitive structure. Cognitive map is nothing but the hierarchical representation of content. All these above mentioned steps require teacher’s intellectual scaffolding for construction of cognitive maps by students.

As a teacher educator when researcher was giving guidance for student teachers about organization of content for teaching she realised the importance of reading of content. Reading is a crucial activity and cognitive process to construct knowledge in the form of cognitive map. While orienting student teachers about cognitive mapping researcher thought about meaningful learning of school students. According to researcher when school students get oriented about reading skills in detail they can construct cognitive map of content using and modifying their cognitive structure. Researcher has suggested following reading plan for school students to organise and construct their knowledge for cognitive mapping of content.

**Following reading plan contain three phases**

- 1. Orientation Phase**
- 2. Actual reading Phase**
- 3. Construction Phase.**

**Reading plan:**



**Reading Plan for Construction of Cognitive Map:**

**1<sup>st</sup> Phase – Orientation Phase:**

Orientation phase has two parts.

**Part A**– In this part teacher is expected to give general orientation about concept, importance and purpose of reading, conditions and sources of reading. Teacher should create readiness in students for reading.

**Part B** – This part is for detail orientation about types of reading and whole reading process with types of reading. Here the teacher discuss with students about different forms of content and ways of presentation of the same. He is expected to give complete idea about how to construct cognitive map of content read and make the students aware about thought process involved in reading process.

**2<sup>nd</sup> Phase – Actual Reading Phase:**

In this phase teacher expected to instruct the students each step and type of reading in detail.

**Skimming**– This is initial step in actual reading phase. Student goes horizontally and read introduction, chapter headings and summaries for shallowest knowledge of the subject. Introduction and summaries give over view of the structure of book. Chapter headings give idea about intention and coverage of book. Student quickly runs the eyes over content. Here student gets idea about content and he can start thinking about relation of new content with existing cognitive structure.

**Scanning –**

Scanning is second reading looking for particular piece of information. Student is expected to prepare his/ her own table of content splitting the information into different forms of content. Scanning gives moderate level of information on subject. Student can understand the **horizontal expansion** of subject through scanning and different ways of presentation of content.

**Extensive Reading–**

Extensive reading is more active stage in whole reading plan. Here student can compare his/her own structure of thought with writer's structure of thought. **Screening** takes place in extensive reading. It is longer text reading gives pleasure and understanding of content. It is vertical and detail reading. Students come to know the difficulty level of content and he/she tries to understand the new content relating it with existing cognitive structure. If the **potential fit** is not there teacher has to provide **intellectual anchorage** to modify existing cognitive structure. Students become more focused; He can think relevant details and skip irrelevant information about content. In extensive reading student can think of **supreme, super, coordinate and subordinate** levels of content. It is **vertical reading** to know the depth of content. It makes the students to understand **analogies** given in content. From this student can understand relationship between different forms and levels of content. Student can think of connecting different levels and different forms of content and establishes the **relationship** between them. Due to extensive reading **clustering enhances** and **compulsivity reduces**. Extensive reading is a starting of **paraphrasing** and **imaging**.

**3<sup>rd</sup> phase - Intensive Reading: (construction phase)**

Intensive reading is a look- back process. It is vertical, accurate and spot reading. It includes encoding, annotating and pondering. Actual paraphrasing and imaging takes place in intensive reading. Students' pickup important words, phrases and place them in different levels of content like **supreme, super, coordinate and subordinate**. Actual connecting all these levels of content and establishing relationship between them takes place in intensive

reading. It is actual process of extraction and construction of knowledge in the form of cognitive map which is outcome of reading plan developed by researcher. Intensive reading demands **teacher's intellectual scaffolding** because construction of cognitive map need to modify student's cognitive structure. If students are not able to construct map teacher can again orient them about steps.

**Conclusion:**

Creating cognitive map is self-regulated activity. It is a power full way for students to reach high level of cognitive performance. Learning always demands autonomy, suggested learning plan gives complete autonomy for learner. Outcome of this reading plan can be autonomous learner which is today's need in constructivist paradigm. Cognitive mapping can be the ideal evaluation tool for teachers to assess student's performance.

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