
UNIT 17 AUSUBEL'S THEORY OF LEARNING

Structure

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- 17.2 Key Ideas in Ausubel's Theory of Learning
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17.1 INTRODUCTION

In the last Unit, you have studied about Bruner's theory of cognitive development which emphasizes 'discovery learning', i.e. we learn through discovery. Bruner's theory is frequently contrasted with Ausubel's theory of learning which emphasizes 'reception learning' — the type of learning in which the teacher presents information/knowledge in its final form rather than allowing children/adults to discover it on their own. According to Ausubel, verbal learning methods of speech, reading and writing should be emphasized in learning, which is what is generally done in schools/colleges. Bruner's and Ausubel's methods seem opposite to each other. However, both Bruner's and Ausubel's ideas about teaching-learning are relevant to educators and in teaching-learning situations and neither of them can be ignored. Both Bruner's and Ausubel's theories have great practical use in education.

In this Unit, you will read in detail about the Ausubel's theory, especially the 'expository' teaching method suggested by Ausubel and 'concept mapping' — the teaching method developed based on Ausubel's theory. You will also make comparisons between Bruner's and Ausubel's theories.

You may feel that some of the concepts we have spoken about in this Unit are not very appropriate for teaching young children. They are more relevant for teaching older children. While this is true, yet you will find the concepts discussed in this Unit very relevant for your own learning. Also, some of the concepts can be adapted and used with young children.

Objectives

After reading this Unit, you should be able to:

- describe the major ideas of Ausubel’s theory in detail;
- compare Bruner’s and Ausubel’s theories;
- explain the steps involved in ‘Expository’ teaching method proposed by Ausubel;
- understand what is ‘advance organizer’, its types and importance of using it in teaching-learning process; and
- understand the ‘concept mapping’ method of teaching-learning and the benefits for teachers and learners.

17.2 KEY IDEAS IN AUSUBEL’S THEORY OF LEARNING

David Ausubel (1918-2008), a famous American psychologist, believed that **people/children acquire knowledge mainly through ‘reception’, i.e. when they receive it or are exposed to it directly by their teachers.** Ausubel called this ‘reception learning’. Therefore, he suggested the ‘**expository teaching method**’ in which the teacher directly teaches/exposes knowledge in its final form to the students, rather than allowing the students to ‘discover’ it on their own. This is the central idea of **Ausubel’s theory**. Hence, we can see that Ausubel’s views are directly in contrast with Bruner’s who emphasized ‘discovery learning’.

Key Idea 1

A primary idea of Ausubel’s theory is that **learning of new knowledge is dependent on what is already known.** In Ausubel’s words, “**The most important single factor influencing learning is what the learner already knows. Ascertain this and teach accordingly**”. He called this ‘**meaningful verbal learning**’, i.e. how individuals learn large amounts of "meaningful" knowledge from verbal/textual lessons in school. According to Ausubel, the new concepts (presented by the teacher or read by the student from books) become ‘meaningful’ for the learner only when she is able to relate the new knowledge to the concepts she already knows. In other words, the new knowledge acquired by the learner is ‘meaningful’ for her only when she is able to understand the relationships/linkages between the new ideas and the ideas/concepts which are already there in her mind. **Thus, new knowledge must interact with the learner’s existing knowledge structure in order to be learnt.**

According to Ausubel, this ‘meaningful verbal learning’ is different from ‘rote memorization’. In ‘rote memorization’, we learn by simply adding new knowledge to our existing knowledge structure, but **we do not understand and form any linkage/relationship between the new and existing knowledge.** But as discussed above, ‘meaningful learning’ involves recognizing and forming links between the new concepts and the concepts already in our mind.

Do you find here any similarity with Piaget's ideas? Write down whether you find any similarity between Ausubel's and Piaget's ideas.

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You would remember that Piaget stated that the child will learn new concept when she is developmentally ready to learn the concept.

Another important point to note here is that according to Ausubel, both reception learning and discovery learning may result in meaningful learning. Therefore, according to Ausubel, for 'meaningful learning' to occur, it is not important how the information is known (in other words, whether it is given to the child or discovered by the child) but **how the new information is integrated into the old knowledge structure.**

Key Idea 2

Ausubel believed that we learn by understanding relationships between various ideas and forming linkages between them. This is how **we construct a network of concepts in our mind.** Whenever we encounter new concepts or information, we add or link the new concepts to this existing concept network by understanding relationships between the new concept and the concepts already existing in this network. In this way, our network of concepts keeps expanding and getting modified.

Refer to Bruner's theory and read the section on coding system. According to Bruner, we acquire new concepts through 'discovery' and then organize concepts in our mind hierarchically i.e. in increasing/decreasing order of generality i.e. either from most general concept to most specific or from most specific to the most general. Bruner called this 'coding system'. You can see the similarity between Bruner's coding system and Ausubel's network of concepts.

Like Bruner, Ausubel also believed that concepts are of different depth. That is, concepts can range from the very general to the very specific. In the network of concepts constructed by us in our mind, concepts are organized hierarchically with the most general concept at the apex and increasingly specific concepts towards the base. In simple words, according to Ausubel, when we create a 'concept network' in our mind, we place most general concept at the top and the specific concepts towards the base. Hence, in order to 'learn meaningfully', the learner must recognize the level of new concepts (i.e. whether it is general or specific) and then place them accordingly within their knowledge structure/concept network.

Key Idea 3

Now, what is the process through which we place new ideas into our existing knowledge structure? Ausubel called this process through which we place new ideas into our existing knowledge structure as ‘**subsumption**’. To ‘**subsume**’ means ‘to incorporate meaningful information into existing cognitive structure’. According to Ausubel, subsumption is the process of learning. The subsumption process is basically of two types:

- 1) **Derivative subsumption**: When the new idea/concept incorporated is so similar to ideas in the existing knowledge structures that it is attached/linked without altering the existing knowledge structure, then it is called ‘**derivative subsumption**’. It is called so because it seems that the new concept could have been derived directly from our existing knowledge. For example, you have a basic concept of ‘fish’. Through your existing knowledge, you may understand that fish is an ‘aquatic animal’ i.e. it lives in water, it has fins, eyes, jaws, gills and a tail fin. A particular shape of fish comes to your mind when you think of fish. Now, suppose you see a ‘gold fish’ in a fish aquarium at your friend’s house. The appearance of ‘gold fish’ is so similar to the concept of fish in your knowledge structure that the concept of ‘gold fish’ is linked to your concept of ‘fish’ in the existing knowledge structure without altering it in any way. This is called ‘derivative subsumption’.
- 2) **Correlative subsumption**: When while incorporating new idea/concept, we have to modify or extend our existing knowledge structure, it is called ‘**correlative subsumption**’. For example, think of shellfish, jelly fish and star fish. Can you imagine how these look? Now, when you read about these in detail, you will come to know that these are aquatic animals but not fishes. Hence, now your knowledge structure would be modified and you will remove these from the concept of ‘fish’ and place them under the more general concept of ‘aquatic animals’. You may also read in detail about their biological classifications and accordingly place them under more specific concept categories in your mind.

Do you find any similarity with Piaget’s ideas here? Is ‘derivative subsumption’ similar to assimilation process and ‘correlative subsumption’ similar to accommodation process? Write down your views.

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Check Your Progress Exercise 1

- 1) Read the following statements carefully and state whether they are correct or incorrect.
 - a) Reception learning is when children acquire knowledge directly by receiving information from their teacher. ()
 - b) The key idea of Ausubel's theory is discovery learning. ()
 - c) While incorporating new idea/concept, we have to modify or extend our existing knowledge structure, it is called 'derivative subsumption' ()
 - d) We learn by constructing a network of concepts in our mind. ()
 - e) Ausubel's network of concepts is same as Bruner's 'coding system' in our mind. ()

2) Answer the following questions briefly in the space provided below.

a) What do you understand by 'meaningful verbal learning'?

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b) 'Subsumption' is a process of learning. Explain in detail.

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17.3 COMPARISON BETWEEN AUSUBEL'S AND BRUNER'S THEORY

The above discussion, gives you a fairly good idea of Ausubel's theory and its similarities/differences with Bruner's. The two theories are frequently compared by the educators. Hence, the differences and similarities between the two theories are discussed in detail in Table 17.1:

Table 17.1: Differences between Bruner’s and Ausubel’s Theory

S.No.	BRUNER	AUSUBEL
1.	Bruner emphasized ‘discovery learning’ approach for teaching children in which the teacher presents materials/ideas in such a way so as to encourage children to discover and construct knowledge on their own.	Ausubel stressed ‘reception learning’ approach and hence ‘expository teaching’ method in which the teacher presents knowledge in its final form rather than allowing children to discover it on their own.
2.	Bruner advocates the use of ‘unguided discovery’ method for young children and ‘guided discovery’ method of teaching for older children.	Ausubel agrees with Bruner that for young children, discovery learning is most appropriate but for older children he advocates use of ‘reception learning’ approach.
3.	In ‘Discovery learning’ approach, the teacher uses ‘specific’ examples to help students formulate a general concept. For example, to teach young children about the general concept of ‘flower’ the teacher would show different flowers such as rose, sunflower, marigold etc. to children. These are all specific examples of flowers which help children formulate the general concept of flower i.e. what is a flower, what are its parts and characteristics etc.	In the ‘expository’ teaching method, the teacher teaches a concept from general to specific. For example, the teacher teaches children about a flower, its different parts etc. This constitutes the general concept of flower in the children’s mind. Then, the teacher shows and teaches in detail about specific flowers to children.
4.	As the child discovers and learns on her own in ‘Discovery learning’ approach, it enhances the child’s problem solving abilities, is motivating and satisfying and encourages self learning by the child.	In ‘reception learning’, the child is not allowed to discover concepts on her own. The teacher teaches the concept in its final form. Hence, it may not enhance self learning/problem solving by the child and may also be less interesting to the child as compared to discovery learning.
5.	It is not possible to teach every concept through ‘discovery’ method. In fact, the students may take too long to discover concepts on their own and at times they are not able to discover anything significant.	Even concepts that can be learnt by discovery approach can be mastered well by the learner if the teacher teaches them in final form. Hence, if we see the cost and time involved and also knowledge gained by the learner, the reception learning seems better. Perhaps, this is the reason why most school learning is of reception variety.

Of the two learning approaches — ‘discovery’ and ‘reception’ – does one seem better to you than the other?

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In fact, **it is impossible to use either ‘Bruner’s’ or ‘Ausubel’s’ approach exclusively for teaching children. A good teacher makes use of both approaches depending on the suitability of the approach to the concept to be taught.** One cannot ignore either of the two approaches while teaching.

17.3.2 Similarities Between Bruner’s and Ausubel’s Theories

The above discussion would have led you feel that Bruner’s and Ausubel’s approaches to teaching-learning are totally opposite to each other. However, there are many similarities as well between Bruner’s and Ausubel’s theories which are discussed below:

- 1) Both are cognitive theories of learning. Both present a similar view of the learner as an active, information processing person.
- 2) According to both the theories, the learner relates the new information to her existing knowledge structure.
- 3) The descriptions that each theory provides of the formation of cognitive structure in our mind are very similar, although the language is different. For instance, Bruner calls a concept as ‘category’ and Ausubel calls a concept as ‘subsumer’. Similarly, Bruner refers to the process of forming cognitive structure in our mind as ‘categorization’ while Ausubel calls it as ‘subsumption’.
- 4) Both Bruner and Ausubel hold similar views about hierarchical nature of knowledge. According to both, we organize knowledge in our mind in a hierarchical order. Bruner says we arrange categories in our mind in order of general to specific or specific to general. Ausubel states that we organize subsumers in the order of general to specific.

Now we move on to the teaching methods as suggested by Ausubel.

Check Your Progress Exercise 2

- 1) Write any two differences between Ausubel’s and Bruner’s theory of learning in the space provided below.

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- 2) Fill in the blanks:
- A cognitive concept is referred to as by Bruner and by Ausubel.
 - Both Ausubel and Bruner have given the learning theory of
 - Learning wherein the child discovers on his/her own is referred to as
 - The teaching method in which the teacher teaches a complete concept from general to specific is called

17.4 METHODS OF TEACHING BASED ON AUSUBEL’S THEORY

Ausubel’s theory has great implications for education. He is considered to have made major contributions to verbal teaching-learning methods in education. The ‘expository’ teaching method proposed by Ausubel is applied in almost all school learning. Ausubel proposed the use of ‘advance organizer’ in expository teaching which is again considered to be very important contribution of Ausubel. ‘Concept mapping’ method of teaching-learning was developed by Novak and his research team in 1970s based on Ausubel’s theory of learning. It is fast emerging as a very effective method of learning.

We shall discuss these teaching methods in detail:

17.4.1 Expository Teaching

As discussed above, Ausubel suggests that for children to acquire knowledge, the teacher should present the information in its final form. Hence, Ausubel suggested ‘Expository Teaching’. **In Expository teaching, the teacher presents knowledge in complete, organized and sequenced form moving from a broad (most general) to more specific concepts.** In fact, if you look at the textbooks of children beyond kindergarten classes, you would find each unit in them organized according to ‘expository’ teaching style. Let us discuss the steps in ‘expository teaching’ in detail.

STEPS IN EXPOSITORY TEACHING

STEP 1: Advance Organizer

Ausubel’s teaching method always begins with an ‘**Advance Organizer**’. Advance Organizer is basically a **broad introductory statement** that a teacher says which tells about “what she is going to teach” before starting teaching the ideas or concepts. Hence, by beginning with an Advance Organizer (i.e. by giving a broad introductory statement), a teacher provides a preview of the information to be presented and generates interest in the learners. In fact, each unit of the school textbooks begins with an introduction to the concept to be taught. This enables the students to start with a “big picture” of the upcoming information, and link new ideas to their existing knowledge.

The important characteristics of an 'advance organizer' are:

- 1) It is presented before the lesson.
- 2) It contains information about the important ideas in the lesson and also about the relationships among various ideas to be presented.
- 3) It reminds the learner of her existing knowledge which is related to the new concepts to be presented.

Hence, **Advance Organizers basically prepare the learner's mind for the learning experience about to take place.** According to Ausubel, advance organizer acts as a tool to help students 'integrate new information with their existing knowledge, leading to "meaningful learning"'. In fact, Advance organizers are very helpful when difficult and complex concepts are to be taught.

Look at the textbooks of children of Classes II and beyond. See how each unit begins. These introductory statements are all basically 'advance organizers'. Write down a few advance organizers you have read in textbooks in the space given below:

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Note whether each advance organizer is relating to the learner's existing knowledge and preparing the learner for the new information to be presented. Do you find that these advance organizers differ from each other in some way?

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Ausubel has proposed two types of Advance Organizers:

- i) **Expository Organizer:** Expository Organizer is basically an introductory statement comprising of the brief description of the new concepts to be taught so that they start becoming familiar to the learner. This enables the learner to understand the new concepts and incorporate them in her knowledge structure more readily.
 - For example, eight-year-old children (belonging to Class III) are taught about 'the classification of animals according to their feeding

habits’. Now, all children know about different animals and they do have some idea about the feeding habits of many animals. They know that rabbit eats carrot, lion eats other animals, cow eats grass, birds eat insects, cats eat mice and drink milk etc. But they do not know anything about the classification of animals according to their feeding habits. Therefore, the expository organizer planned by the teacher or given in the text book to begin teaching this topic may be as given below:

You already know that different animals eat different kinds of food. Look at these pictures of animals and write down what these animals are eating.

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Thus, you can see that different animals have different feeding habits. Some animals eat plants and others eat animals. Can you think of some other animals and what they eat? Now, we will classify animals according to what they eat.

The above Expository Organizer discussion done by the teacher in class would prepare the children for the topic about to be taught.

- Another example of ‘expository organizer’ is given below. It is for introducing the topic ‘Methods of cooking food’.

We all see our mothers cooking food in the kitchen. Sometimes she cooks food in a pressure cooker, sometimes she fries food in a frying pan, and sometimes she cooks food in a pot. All these are different methods of cooking food.

Note how these Expository organizers relate to children’s prior knowledge and introduce the new concept to children in a way that they can easily understand and incorporate it in their existing knowledge structure.

- ii) **Comparative Organizer:** A ‘comparative organizer’ as its name suggests compares and describes similarities and differences between the new concept to be taught and the concept which the learner already knows.

- For example, suppose a teacher has to teach a lesson on “Body Systems” and describe cells and organs and also explain the body systems like digestive system, respiratory system, nervous system, excretory system. How would she begin teaching this unit? She can make use of the comparative organizer given below:

Have you ever seen a mason building a house? You must have seen him laying the bricks, one above the other to make a house. He first forms walls of the house. The walls form a room and a number of rooms make

a house. Thus, a house is basically made from bricks. A single brick is the smallest part of the house.

Similarly, the smallest part of our body is a cell. A group of the same type of cells form tissue (just as bricks form walls). These tissues join together to form an organ (just as walls join together to form a room). Eyes, nose, ears, heart, stomach and brain etc. are all our body organs. All these organs work together as various 'body systems' so that our body can work smoothly.

Some of our body systems are:

- 1) Digestive system
- 2) Respiratory system
- 3) Skeletal system
- 4) Muscular system
- 5) Nervous system
- 6) Circulatory system
- 7) Excretory system
- 8) Reproductive system

Now, we shall read in detail about each of these systems.

This comparative organizer prepares the students to understand a new concept of 'body systems' by comparing it with a concept of house which children already know.

- Another example can be a comparative organizer given below for introducing the topic of 'food groups':

All living beings need food. Just as a car needs petrol to run, our body needs food to do all its activities. We eat rice, wheat, pulses, fruits and vegetables when we feel hungry. We need food for our growth and health and to get energy to do all our work. Foods can also be classified into the following groups depending upon what they help us do:

- 1) Energy giving food
- 2) Body building food
- 3) Protective food

Now, we shall discuss about each of these food groups in detail.

In this example of comparative organizer, our body is compared to a car and food is compared to petrol.

- Another example can be a comparative organizer given below for introducing the topic of "Plant and its parts":

You all must have seen lots of plants around you. Some are big and some are small. Just as our body has various parts, so does the body of a plant. Can you name some of the parts of the plants and mention their functions?

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Let us now study about the different parts of a plant and their functions:

In this example, comparison is done between our body parts and plant parts to introduce the concept of the parts of the plants.

All these examples indicate how concepts such as ‘classification of animals based on their feeding habits’, ‘methods of cooking’, ‘plants and their parts’, ‘body systems’ and ‘food groups’ which may be difficult to understand otherwise are made easier for children to understand and incorporate into their knowledge structure, by use of advance organizers.

Now, you can understand how advance organizers help children in understanding difficult concepts. Do you agree that it is essential to use an advance organizer (in other words, give a broad introduction to the topic) before beginning to teach a new concept? Can the teacher teach concepts more effectively by using an advance organizer? Write down your views.

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STEP 2: Present Full Concept/Lesson

After presenting the advance organizer, the next step for the teacher is to present the full concept/lesson. The learning material can be presented in the form of lectures, discussions, films, experiments or reading material. According to Ausubel, while presenting the concept, the teacher should encourage students to think of examples related to the concept and then compare them to find the similarities/differences between them. Ausubel states that while presenting the concept, the teacher should present the most general ideas of the topic/lesson first and then progress to details and specifics of the concept/topic. He referred to this as ‘Progressive Differentiation’.

- For example, while teaching the concept of ‘parts of the plants’, the teacher may first teach the children to identify and name different plant parts like stem, shoots, leaves, flowers and roots etc. Thereafter, the teacher can teach about each part of the plant in detail.

Does the concept of ‘Progressive Differentiation’ sound similar to ‘Spiral curriculum’? Write down your views.

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STEP 3: Relate Content Back to the Organizer

Finally after presenting the whole lesson, the teacher should ask students to relate the concept back to the advance organizer. Thus the children may look back at the advance organizer given in the book or discuss what they knew earlier and what new knowledge they have acquired. This is the third and final step of Expository teaching. During this step, the teacher should encourage students to participate in the class discussion, actively, by coming up with their own ideas and examples. The teacher can also ask learners to make summaries, point out differences and relate new examples with the advance organizer.

At this step, the teacher has to help the students to evaluate the topic critically, understand the concept in depth and compare it with previous knowledge. The purpose of this step is to strengthen the new concept in the student's existing cognitive structure. The student is able to integrate the new knowledge with her previous knowledge and this helps in 'meaningful learning'.

These steps in Expository teaching are summarized in Figure 17.1.

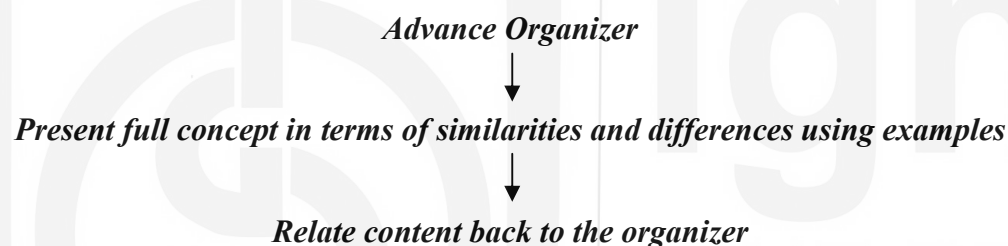


Fig. 17.1: Steps in Expository Teaching

17.4.2 Concept Mapping

Concept mapping was first developed by Professor J.D. Novak and his research team in 1972 at Cornell University, New York, U.S.A. It is based on the two theoretical principles of Ausubel's theory – 1) that the most general ideas of a subject/topic should be presented first and then the details and specifics of the topic/subject should be discussed, and 2) for meaningful learning to occur, new material must be related to relevant ideas in the existing cognitive structures of the learner. Concept mapping is derived from these two principal ideas of Ausubel's theory.

What is Concept Mapping?

Let us understand this through the following example:

For example, as you are reading a textbook to prepare your lesson for the class, you write down important points/keywords on the side of the page or in a notebook. Then you organise these keywords/important points in a diagram/flowchart form that show how these are related to each other. This diagram/flowchart is called a 'concept map' and the process is called 'concept mapping'.

Concept mapping is defined as a '**technique of making a graphical representation of concepts and links in between them**'.

Concept maps are defined as ‘**diagrams representing concepts and interrelations/links between them in both vertical and horizontal dimensions**’. Concept maps are ‘**visual representation of the information and show relationships between various ideas**’. The concept maps have two main parts, “**concepts**” and “**linking words**”. The ‘linking words’ join two or more concepts in a concept map. The concept maps are made as flowcharts with arrows, boxes and circles. Figure 17.2 & 17.3 show as how concept maps are made.

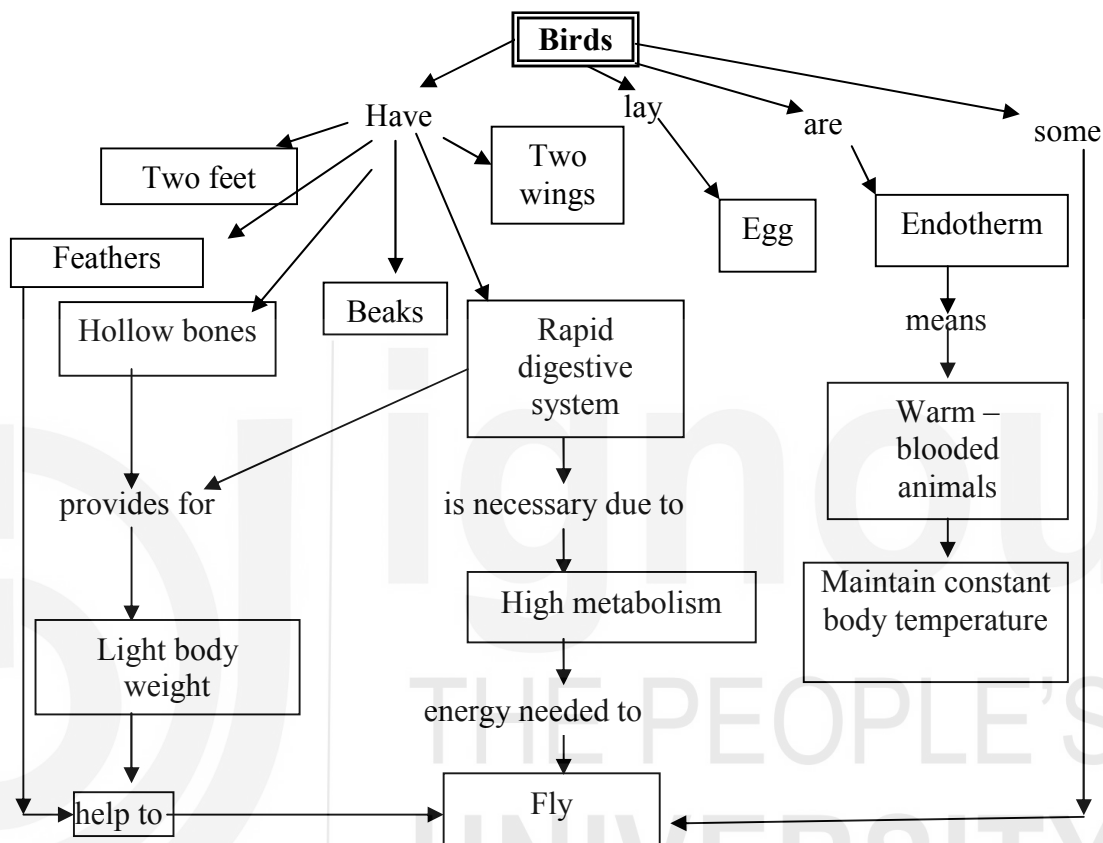


Fig. 17.2: Concept Map on topic ‘Birds’

In the concept map in Figure 17.2, “Birds”, “Rapid Digestive Systems” and “High Metabolism”, “Endotherms”, “Warm blooded animals” and “Fly” etc. are **concepts**. And “have”, “is necessary due to”, “are”, “means”, “some do” etc., are **linking words**, and together these form statements viz. “Birds have Rapid Digestive Systems”, “Rapid Digestive System is necessary due to “High Metabolism” and “Birds are endotherms means warm blooded animals.” etc. Similarly, you can read more statements in the concept map given above which reveal more information about what birds are. Therefore, understanding what concepts are is a basic step in understanding concept maps and also as how to construct and use them.

The concept map given above may seem complicated to you. However, simple concept maps can also be made as given in Figure 17.3.

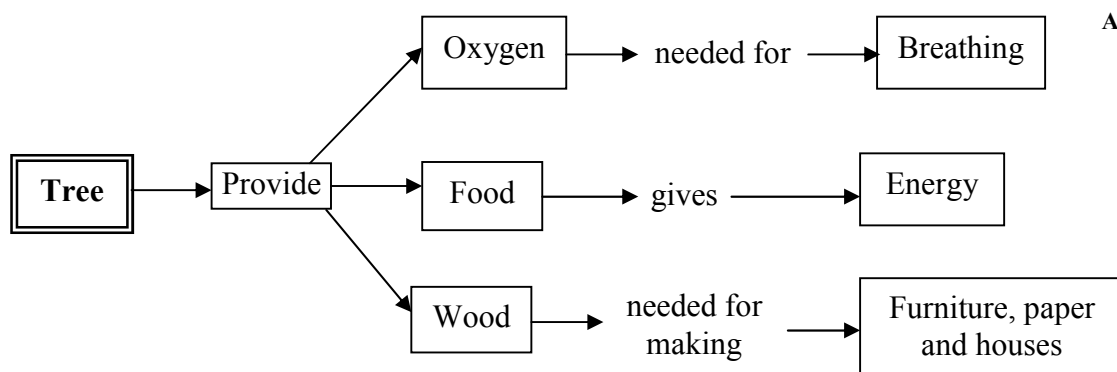


Fig. 17.3: A Simple Concept Map on topic 'Trees'

According to Novak and Gowen (1984), concept maps should be hierarchical i.e. the more general, more inclusive concepts should be at the top of the map, and the more specific, less inclusive concepts at the bottom of the map. Can you notice this in the concept map given above?

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Do you find any similarity between Novak's idea of concept mapping with Ausubel's ideas here? Write down your comments.

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Concept-mapping assists in 'meaningful learning' of a concept by helping the learner to link and integrate new ideas and concepts to their existing knowledge in their mind. This is again consistent with Ausubel's theory and shows how 'concept mapping' is based on Ausubel's theory. Write down your views on this.

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Advantages of Using Concept Maps

The advantages that learner has by using concept maps are summarized below:

- 1) By identifying the keywords in the information given and then linking these keywords to create a concept map, the student is able to summarize and organize the information given.
- 2) The learner is also able to clarify for herself the subject information given and then is able to use this information more effectively.
- 3) By constructing a concept map, the student has information in a more ready form to incorporate in her existing knowledge structure. Hence, she is able to easily connect the new information with the knowledge she already has.
- 4) Concept maps assist in the learning process by helping in understanding and memorizing information.
- 5) Constructing concept maps gives learners more confidence of the content: they feel that they can master information.
- 6) The students are able to link and cross-link the concepts and describe their relationship. They then see the ‘bigger picture’ of the phenomenon.

It is not only students who can make concept maps to understand the information given, **but teachers may construct concept maps** too while planning how to deliver a lesson. Teachers may use the concept map even during teaching the lesson. Can you think of the benefits the teacher would have, if she constructs a concept map while planning her lesson or uses a concept map while teaching a concept?

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When teachers construct a concept map while preparing the lesson to be delivered or while teaching in class, they get the following benefits:

- 1) For teachers, concept mapping is useful as it reveals the connections between the various concepts and brings about more clarity in their teaching.
- 2) The concept maps make the key concepts more evident to the teachers and also show them linkages between the new information to be learned and what the student already knows.
- 3) The teachers can construct concept maps and then use them as instructional material while delivering a lesson. For example, during class discussion, the teachers can construct concept maps on the blackboard based on students’ ideas so that all students can see and understand what everyone else has said about the topic. The students can in fact discuss the concept maps constructed and reach a consensus on

the topic. This will lead to more meaningful discussion on the topic. Following this initial construction and discussion of concept maps, the teacher can plan various activities for the students to help them understand the concept even better and explore alternative answers on the topic under discussion.

- 4) Concept-mapping as a teaching method facilitates critical thinking in students as when teachers use concept maps while teaching a concept, the students are able to understand the concepts taught in-depth and also are able to identify interrelationships between various concepts.

An important point to note here is that after delivering a lesson, the teacher should help the learners to construct concept maps on their own. In fact, **it is fundamental for the success of the learning experience that each learner produces her own concept map.** When students construct concept maps on their own, they understand the new concepts much better. Their clarity on the subject topic becomes even more.

The above is how concept mapping assists in teaching-learning process. In fact, teachers are increasingly using concept maps to teach concepts in schools. **Studies indicate that even young kindergarten children can be taught by using concept maps** but these concept maps should be very simple using small number of concepts (2 to 4 only) and should be for a simple, familiar topic (e.g., animals or plants). These concept maps should show simple links between the concepts but not hierarchical relationships between them. The examples of simple concept maps which can be used with young children are given in Figure 17.4.

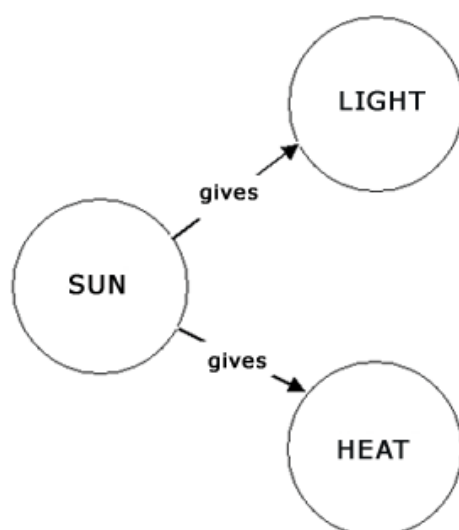
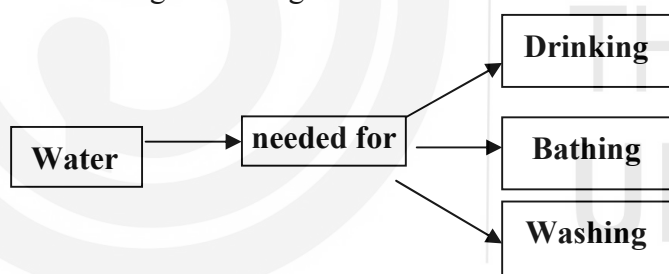


Fig. 17.4: Examples of simple concept maps using a simple familiar topic

Check Your Progress Exercise 3

- 1) Read the following statements carefully and write one word to describe it.
 - a) A technique of making a graphical representation of concepts and links in between them.
 - b) A broad introductory statement that contains information about the important ideas in the lesson and also about the relationships among various ideas to be presented.

2) What do you understand by the term ‘advance organizer’?

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3) What are Concept Maps? Write a few points to be kept in mind while preparing a concept map for young children?

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17.5 SUMMING UP

- The central idea of Ausubel's theory is that the teacher should present knowledge directly in its final form to the students, rather than waiting for students to 'discover' it on their own.
- According to Ausubel, **“The most important single factor influencing learning is what the learner already knows. Ascertain this and teach him accordingly”**.
- Ausubel's theory focuses on **'meaningful verbal learning'** i.e. how individuals learn large amounts of “meaningful” knowledge from verbal/textual lessons in school. According to Ausubel, the new concepts (presented by the teacher or read by the student from books) become 'meaningful' for the learner only when she is able to relate the new knowledge to the concepts she already knows.
- According to Ausubel, when we create a 'concept network' in our mind, we place most general concept at the top and the specific concepts towards the base. Ausubel called this process through which we place new ideas into our existing knowledge structure as **'subsumption'**. To **'subsume'** means 'to incorporate meaningful information into existing cognitive structure'.
- The subsumption process is of two types: a) Derivative subsumption and b) Correlative subsumption
- Bruner's and Ausubel's theories are frequently compared. Their theories are similar in some aspects but are different in the approach. The most important distinction between the two is that Bruner advocates use of 'Discovery learning' approach while Ausubel asserts 'Expository' teaching style for teaching children.
- The 'expository' teaching method proposed by Ausubel is applied in almost all school learning. Also, 'Concept mapping' method of teaching-learning is being developed based on Ausubel's theory.
- The steps involved in expository teaching are:
 - Begin with Advance Organizer
 - Present Full Content
 - Relate Back to Advance Organizer
- The use of 'advance organizer' in expository teaching is again considered to be a very important contribution of Ausubel.
- Concept mapping is the technique of making a graphical representation of concepts and links in between them. It is proving to be very useful for both students and teachers.

17.6 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress Exercise 1

- 1)
 - a) Correct
 - b) Incorrect. It is '**reception learning**'.
 - c) Incorrect. It is '**correlative subsumption**'.
 - d) Correct
 - e) Correct
- 2)
 - a) The term '**Meaningful verbal learning**' has been used by Ausubel to describe how individuals learn large amounts of “meaningful” knowledge from verbal/textual lessons in school. The primary idea is that the new concepts (presented by the teacher or read by the student from books) become ‘meaningful’ for the learner only when she is able to relate the new knowledge to the concepts she already knows. Therefore, learning of new knowledge is dependent many a times on what is already known.
 - b) Ausubel has described subsumption as a process through which we incorporate new ideas, meaningful information into our existing cognitive structure. **Subsumption** process of learning is basically of two types.
 - **Derivative subsumption** which happens when the new idea/concept incorporated is so similar to ideas in the existing knowledge structures that it is attached/linked without altering the existing knowledge structure.
 - **Correlative subsumption** is when while incorporating new idea/concept, we have to modify or extend our existing knowledge structure.

Check Your Progress Exercise 2

- 1) Bruner emphasized ‘discovery learning’ approach for teaching children whereas, Ausubel stressed ‘reception learning’ approach. Bruner promotes ‘Discovery learning’ approach, where in the teacher uses ‘specific’ examples to help students formulate a general concept. Ausubel on the other hand supports ‘expository’ teaching method, where in the teacher teaches a concept from general to specific.

Several other differences have been highlighted in the Sub-section 17.3.1

- 2)
 - a) category, subsumer
 - b) Cognition
 - c) Discovery learning
 - d) Expository teaching

Check Your Progress Exercise 3

- 1)
 - a) Concept Mapping
 - b) Advance organizer
- 2) **Advance organizer** is a broad introductory statement given before starting teaching the ideas/concept. It provides preview of the information/concepts to be presented and generates interest of the learner in the lesson to be taught. There are two types of Advance Organizers:
 - **Expository Organizer** that gives a brief description of the new concepts to be taught so that the learner starts becoming familiar to the concept.
 - **Comparative organizer** is one that compares and describes similarities and differences between the new concept to be taught and the concept which the learner already knows.
- 3) Concept maps are '**visual representation of the information and show relationships between various ideas**'. They are a **graphical representation of concepts and interrelations/links between them in both vertical and horizontal dimensions**. They are made as flowcharts with arrows, boxes and circles. Following points must be considered while preparing a concept map:
 - They should be hierarchical i.e. the more general, more inclusive concepts should be at the top of the map, and the more specific, less inclusive concepts at the bottom of the map.
 - Ensure that key words and linking words together are able to reveal the connections between the various concepts and brings about more clarity in their teaching.
 - For young student learners, concept maps should be very simple using small number of concepts (2 to 4 only) and should be for a simple, familiar topic (e.g., animals or plants).