What Is Learning?

Psychologists use the term learning more broadly than it is used in popular speech. It is almost impossible to give an exact definition of learning that will generally be accepted psychologically. However, we can at least note certain phenomena to which to term are or is not applicable. According to Wingfield (1979), the earlier definition emphasized on 'behavior brought about by practice or experience'. On the other hand, the more traditional definition which still is orderly employed today not only emphasized 'relatively permanent changes in behavior but also stress that these changes must occur as a result of experience or practice' (Horton, et, al. 1976). However,

let us consider how different psychologists define the term learning.

"... A change of performance as a function of practice. In most cases, if not all, this change has a direction which satisfies the current motivation conditions of the individual. Practice may also change experience, but most of the changes measured and discussed are changes in behavior. What learning means in more details and a side from any formal definition, can be best seen from a presentation of the phenomena and the conditions which determine them..." Mc Geoch (1942).

A common definition of learning according to Travers (1967) is that learning "occurs

when a response shows relatively permanent modifications of conditions in the environment sometimes refer to as a stimuli or (us)". Hilgard (1958) defined learning as " a process by which an activity originated or is changed through reacting to an encountered situation, provided that the characteristics of the change in activity, cannot be explained on the basic of nature response tendencies, maturation, or temporary states of the organism, for example fatigue, drug etc ..."

Estes (1970) defines learning to refer "to a change of state of the organism inferred from performance-more specifically, to any relatively enduring change in behavioral disposition which occurs as a result of previous experiences" ... (pg. 8)

On the other hand, Gagne (1977) defines learning as:

"A change in human disposition or capability, which persists over a period of time, and which is not simply ascribable to process of growth. The kind of change called learning exhibits itself as a change in behavior, and the influence of learning is made by compassing what behavior is possible before the individual is placed in a 'learning situation' and what behavior can be exhibited after such treatment".

However, Champion (1969) defines learning as 'permanent changes in behavior resulting from practice or experience without meaning that everything learned is perfectly

remembered'. Thus it is apparently plain that 'learning is change' according to Howe (1981) and the ability to change is at the heart of all varied meanings and definitions that have been applied to the term learning.

Gagne's Model of Learning (Fig.1)

Generally speaking, a total act of learning may be conceived as a series of events which often has a short duration as a few seconds. Gagne suggests that the phases of the series of events begin with the establishment of motivation and proceed through apprehending, acquisition, retention, recall, generalization, performance and feedback. Systematic studies of these various learning events have led to the development of models of learning as a set of internal processes corresponding to learning phases.

For each phase of learning, there is conceived to be or more internal processes in the learner's central resource system, which long

form in information from one form to another until the individual responds in a performance. In actual fact, the processes of learning are not directly observable. Nevertheless, they can be subjected to influences from the learner's environment. Gagne conveniently differentiates the learning processes into eight consequent phases. Let us now turn to each and every one of them.

Motivation Phase

The first phase of learning, according to Gagne (1974) is motivation phase. He suggests that in order for learning to occur, one must have a motivation and the motivation that is relevant to learning is incentive motivation. Sometimes it is referred as 'achievement motivation', 'affection' and the 'urge for mastery'. White (1959) viewed incentive motivation as fundamental human urge and one which is broadly indulged in the behavior of human beings. Motivation is usually defined as 'the process involved in arousing, directing and sustaining behavior. It is used to indicate the inner states that urge an organism into activity in the psychological point of view.

According to Estes (1972), motivation may be established by generating within the learner an expectation which is an anticipation of the reward he will obtain when he achieves some goals. In learning, expectancy can be established by communicating to us the nature of the incentive goal; that is, the expectancy is what we expect to happen as a consequence of our learning ability. It may be necessary for the individual to acquire the desired expectancy by learning, especially when his attainment of a goal is rewarded. Thus in order to generate such expectancies, situations can be arranged in such a way that permits the learner to reach intended goals before he has actually acquired necessary skills. Establishing an appropriate expectancy for learning sometimes is a matter of

'channeling' preexisting motivation in a new direction.

Apprehending Phase

The next phase of learning is the apprehending phase. At this stage the motivated learner receives the stimulation that will enter into the essential learning incident and be stored in his memory. In order to get the relevant and desired information for his learning purpose, the learner must attend to the parts of the total stimulation. For example, crying child will stop crying if he wants to attend to another stimulus that attracts this attention.

According to Hebb (1972), attention is a process usually conceived as a temporary internal state called 'mental set', Once it is established, a set operates as a kind of executive control process. It may be activated

by external stimulation and persist over a limited period of time alerting the individual to receive certain kind of stimulation. Attentions may be initially captured by sudden changes in stimulation. For example, if a teacher wants to attract the attention of a dreamy class, he may suddenly change his topic. This will undoubtedly quickly draw their interest. In gaining necessary and relevant information for his learning purpose, a learner's is attention towards certain information has to be selective.

(i) Learning Phase		(ii) Instructional Events
MOTIVATION PHASE Expectancy	}	1. Activating Motivation 2. Informing The Learner Of The Objective
APPREHENDING PHASE Attention: Selective Perception	}	3. Directing Attention
ACQUISITION PHASE Coding: Storage Entry	}	4. Stimulating Recall 5. Providing Learning Guidance
RETENTION PHASE Memory Stage RECALL PHASE Retrieval	}	6. Enhancing Attention
GENERALIZATION PHASE Transfer	}	7. Promoting transfer of Learning

↓ PERFORMANCE PHASE Responding ↓ FEEDBACK PHASE Reinforcement	} } } } } } } }	8. Eliciting Performance; Providing feedback

GAGNE'S MODEL OF LEARNING – (Fig. I)

From Gagne (1974) Essentials of Learning for Instruction (i) and (1977) The conditions of Learning (ii)

Acquisition Phase

Once the external situation has been attended to and perceived the nearly formed entity is entered in short term memory or the working memory as Child (1980) terms it. This is the acquisition phase of learning. Accordingly, the short term memory has a limited capacity, and it is a temporary store of a limited amount of information. Information stays for only seconds and decays rapidly in short term memory. It is estimated that on the average a person may be able to recall between six to ten objects, numbers or letters arranged at random. However, Nuller (1956) suggests that it could be improved radically by chunking; a process of grouping items into chunks, numbering not more than seven.

As information entering the short term memory only stays for a few seconds what remains temporarily in it is not the same as what has been directly perceived for it has been transformed or 'coding' into a form which is mostly readily storable or distorted in certain ways, simplified or 'regularized' and sometimes embellished. Thus, what is remembered is almost never exactly the same as the original stimulation that give rise to learning. In brief, what is stored as the result of an act of learning is apparently not an exact representation or 'mental picture' of what was seen or heard. Other kind of transformations of material occurs when the information enters long term memory. When stimuli are grouped in certain ways, classified under previous learned concepts, or simplified as principles greater attention may occur.

Retention Phase

The learned entity which has been altered by the coding process enters into memory storage of the long term memory. This is what Gagne refers to as the retention phase. Psychologists have a very vague knowledge on the capacity of the long term memory. It seems that its full extent is limitless and to assume that it can be overloaded is absurb.

However, it is indisputable that the information enters the long term memory seems to be permanent in most circumstances. Child. D (1981), suggests that there are several factors influencing the permanent storage of information. Among them are the length of the information (for long messages are less

likely to be remembered than short ones), the content, the opportunity for initial learning and the activity taking place between successive units of information. Some of the learned information may gradually faded away with the passage of time especially when they are irrelevant in study and less chance to use them in every day activities.

The suggestion arises from the known gradual loss of memory that occurs over many years in all of us. On the other hand, memory may subject to interference in the sense that newer memories especially when they are of significant importance and relevant to be remembered tend to obscure older ones. This is because they become confused with them or less probably erase them. Tragic incidents

which have shocking effect on our lives will be stored permanently in the memory, even though we try very hard to forget them. The more we try to forget them the more we remember them. And in some cases, it keeps haunting us even in our sleep.

Recall Phase

When the learner requires certain information that has been learned, he tries to recall his memory on the information or 'searched the memory stone' so that it becomes accessible to be applied in order to exhibit it as a performance. This is the retrieval process and Gagne refers this phase of learning as the recall phase. In order to recall recent and long term memories, different strategies are adopted. External stimulation such as cues may affect the efficiency of reliving.

Tulving and Peartone's (1969) finding highlights this. They found out that High School students could remember better with cues. Of the long list of words given, they managed

to recall 74% with cues. However, those who were not given the cues only managed to remember 34% of the same list of words. For learning purpose, should be guided to adopt 'cue strategies' so as to enable them to learn efficiently. Such healthy independent development should be encouraged by the teacher, as the need to know 'what is going on' in learning and thereby to choose judiciously the communication he makes to the students.

Child (1981), suggests that there are various ways to recall or recover information stored in long term memory. One of them is by reiterative memory; that is the construction and recollection of past experiences for a few cues. Another method is by 'recall' and

this depends upon the active remembering of performance learned previously as repeating a poem, a dance routine, mathematical equations and how to drive a car. The third method is by recognition whereby information clue is given or shown from which we can remember something learned on previous occasion. However, it is believed that trying to recall material memorized by rote method is more difficult than when the material is meaningful.

There are several factors that may affect learning efficiency for retention and recall. According to Child, study habits and abilities of individual are important in determining performance in all forms of recall. Efficient study is an individual activity and one

must work out the best methods for one self. Organization of the learning system is necessary. In this respect students and teachers need to organize and order out subject matter and methods to avoid confusion. This may make learning efficient and helps good storage of information. Place of study is also of prime important. In order to get maximum concentration possible, one needs to choose a place where there is as little distraction as possible. Peaceful and quiet place where one can sit comfortably is essential.

Generalization Phase

Gagne's next phase of learning is the generalization phase. Accordingly retrieval of what is learned does not always occurs in the same situation or within the same content that surrounded the original learning. The learner must be able to recall what has been learned and its application to new and different content. The ability to recall and apply what is learned psychologically refers to as the transfer of learning. O'Conells (1973) recognized two principals of transfer: the positive transfer (what is learnt in one situation may help one's performance in another situation) and negative transfer (what is learnt in one situation may hinder or inhibit one's performance in another situation). In

other words, positive transfer has taken place when something previously learnt benefits learning, and conversely negative transfer occurs when something previously learnt hinders new learning.

In order for the application or transfer of learning to take place, there must be a working rule to follow. The study of Judd (1908) and Hendrickson and Schroeder (1941) suggests that understanding the principles in general sense, while transfer is important, may not always be sufficient. It may be that working rule was more directly related to the new situation or that is functioned as a retrieval cue to connect the principles of the new context. As transfer is a goal of school learning, instructions need to include the means of

insuring retrieval in the greatest variety of context possible.

Performance Phase

When the learner is able to perform what has been learned, it is assumed that learning has occurred. In other words the learner obtains the satisfaction that comes from perceiving the product of his learning. This is what Gagne refers to as performance phase. The performance of his pupils has an essential function for the teacher. By ensuring that the pupils can perform satisfactorily on the given tasks indicates that the pupils have learned the task. There is no general rule to indicate how many performances are required to convince that learning has occurred. It depends on the degree of the generality of the performance itself. Of course, a single instance of performance is not entirely

convincing to ensure that the pupils have learned the task. However in classroom learning, a single instance of performance often suffices as evidences of learning.

The Feedback Phase

Once the learner has exhibited the new performance made possible by learning, he at once perceives that he has achieved the anticipated goal. This information feedback or reinforcement process works in human learning because the expectancy established during the motivational phase of learning is now confirmed during the feedback phase, the last phase of learning. It is believed that this last phase of learning is influenced by events external to the learner.

Sometimes it is naturally provided by the learner's performance itself. The information nature of the feedback appears to be its most critical feature, so far as the support

of learning is concerned. It is presumed that, the process of reinformant operates in human beings because an anticipation of reward is confirmed. The importance of the motivational phase to the act of learning so again reemphasized by the reinforcement process. Reinforcement closes the learning loop and the expectation established during the motivation phase results in feedback that confirms the expectancy.

Conclusion

Gagne's phases of learning as described earlier and as shown in Fig. I cannot necessarily be easily observed under every day circumstances. We must also not forget the fact that the learner is not aware, of most of the processes of learning. Some of the events that make up a learning incident are external to the learner. These are the readily observable things: the stimulation that reaches the learner and the products that result from his responding.

Nevertheless, many learning events are internal to the learner and are inferred from the observations made externally. These internal activities which are considered to take

place in the learner's central nervous system are the processes of learning that have been described in this essay.

It is indisputable that learning plays a larger role in the survival of higher species such as men, than of simple organisms. Undoubtedly, the higher species display more ability to make complex and highly organized change as a results of learning. Virtually, Howe (1980) is bold to remark that all complex human abilities depend upon learning. Smith (1975) rightly stressed that what we learn about the world enables as to make sense of it; making sense has been characterized as relating events in the world around as the cognitive structure when it fails to make sense of the world. Learning, in other words, is not simply

the basis of our attempts to make sense of the world; it is itself a consequence of our urge to transform uncertainty into familiarity. Like comprehension, learning is an interaction between the world around us and the theory of the world in our head. We learn because we cannot understand, cannot relate, cannot predict.

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