

TECNIA INSTITUTE OF ADVANCED STUDIES

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-: Bloom's Taxonomy of Educational Objectives:-

OBJECTIVES

1. To know what is Blooms taxonomy
2. To understand the classification of Blooms taxonomy
3. To analyze the merits and demerits of Blooms taxonomy
4. To know Blooms revised taxonomy

INTRODUCTION

Education aims at implementing desirable changes in pupil's behavior. It is at the policy making level, we want to bring about desirable behavioural changes in pupils through the process of education. Here lies the importance of education commissions appointed by the nation from time to time. It involves the policy, the psychological development of the child, the racial order, the economic conditions, the political set-up, the cultural heritage, the philosophy of life of the community in general and the existing human knowledge. The desirable changes to be attained are included in the education commission reports, which are considered to be the national educational documents and these are called the educational objectives.

An educational objective is a statement of anticipated results. It tells what a student will be able to do at the end of learning in contrast with what they could not do earlier. An objective states the effect of teaching which moulds a different student from what they had been. An objective gives a clear picture of what we are trying to achieve through teaching. It is the final and expected behavior of the pupils at the termination of a period of learning. The three different levels of objectives are Institutional objectives, Instructional objectives and Specific outcomes of learning. Institutional objectives are broad, general goals, but a few in number. General instructional objectives are more precise, but are too broad to define very precisely and they are moderate in number. Specific outcomes of learning are observable, precise and specific and large in numbers.

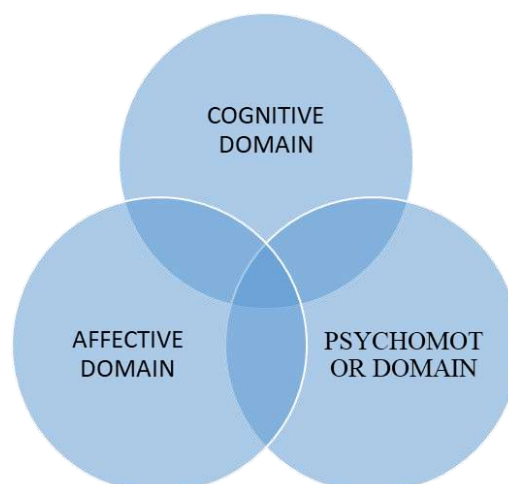
The term instructional objective means, that those immediate aims achieved by teaching and instructions of a particular lesson or topic. These will be the end product or outcomes of teaching a specific lesson or topic, achieved by the learners. Each lesson has its own specific instructional objectives. Without formulating instructional objectives, instruction becomes a waste of time and effort both of the teachers and learners. There are some criteria which are used for writing instructional objectives. They are

- Specification of the learner: We have to demonstrate the learner. Eg. pupil, gifted or exceptional children, class, group etc.
- The learner performance: Specify the learner's performance in forms of objectives. Eg. Students are able to understand, apply, discriminate etc.
- Specification of the condition: Specify the learning conditions for attaining the objectives. Eg. Pupil classifies from a list of 10 or 20 days.
- Specification of the minimum expected level of performance: We should decide the minimum level of pupil's performance quantitatively or qualitatively.
- Adequacy of the instructional objectives: Whole objectives should be given weightage. No performance to a particular objective, representation should be given to all objectives.

Bloom's Taxonomy of Educational Objectives

The word taxonomy derived from a Greek word "Taxis" which means a system of classification. Taxonomy should be an educational logical psychological classification system. The terms in this order express the emphasis placed on different principles by which the taxonomy could be developed. One of the major values of the taxonomy is in the improvement of communication among educators, then educational distinctions should be given major consideration. Second, the taxonomy should be a logical classification in that every effort should be made to define terms as precisely as possible and to use them consistently. Finally the taxonomy should be consistent with relevant and accepted psychological principles and theories.

Use of taxonomy can help one, gain a perspective on the emphasis given to certain behaviours by a particular set of educational plans. Thus a teacher, in classifying the goals of a teaching unit, may find that they all fall within the taxonomy category. Curriculum builders should find the taxonomy helps them to specify objectives so that it becomes easier to plan learning experiences and prepare evaluation devices.



Benjamin S Bloom and his associates set up a taxonomic model of educational objectives based on the primary aspects of the domains of pupils growth.

They are Cognitive domain, Affective domain and Psychomotor domain. In each domain objectives are arranged from simple to complex in a hierarchical order. These three domains are interrelated and mutually dependent.

Instructional Objectives in Cognitive Domain

The cognitive domain is concerned with the intellectual aspect of mental process or cognition. Cognitive objectives vary from simple recall of material learned to highly original and creative ways of combining and synthesizing new ideas and materials. Largest proportion of educational objectives are fell into this domain. The different categories of instructional objectives in cognitive domain are;

1) Knowledge

This instructional objective knowledge relates to the acquisition of different types of informations received by the learner as a part of instruction and it is the lowest level of cognitive instructional objectives. They are

- a) **Knowledge of specifics:** These are small bits of information. This material is of a very low level of abstraction and more complex and abstract forms of knowledge are built from it. This includes the knowledge of terminology and knowledge of specific facts.
- b) **Knowledge of ways and means of dealing with specifics:** This includes the methods of enquiry, the chronological sequences and the standards of judgement within a field. This knowledge is at an intermediate level of abstraction between specific knowledge and the knowledge of universals..This includes the knowledge of conventions,knowledge of trends and sequences, knowledge of classification and categories, knowledge of criteria and knowledge of methodology.
- c) **Knowledge of universals and abstractions in a field :** These are the large structures, theories and generalization which dominate a subject field or which are quite generally used in studying phenomenon or solving problems.Knowledge of principles and generalization and knowledge of theories and structures are the sub categeory of this section.

2) Comprehension

Comprehension is the result of a mental process of the learner which enables them to transform the different forms of information acquired by them to a more comprehensible format. Hence this class of instructional objectives are considered as the second higher level of cognitive instructional objectives. Attainment of the lower level of objectives will help the learner to attain the objectives in a much higher level. So comprehension is possible only afer attaining the lower level objective, knowledge. The learner will be able to performs the following mental processes after instructions.

- a) Translation: It is the ability to understand or comprehend information, skill in translating etc are the basis. Translation is judged on the basis of faithfulness and accuracy when the communication has been altered such as verbal material into symbolic material.
- b) Interpretation :It includes the explanation or summarization of communication. It includes the ability to interpret various types of data, information for ideas.
- c) Extrapolation : The ability to deal with the conclusions of a work in terms of the immediate inference is known as extrapolation.

3) Application

Application is the third level of instructional objectives in the cognitive domain in which the learner applies the materials that has been acquired and comprehend during the first two levels into new and similar situations. The application is only possible after the learner has acquired, knowledge and comprehension.

4) Analysis

Analysis is an intellectual process by which the learner is able to analyse the acquired, comprehend and applied knowledge into its constituent parts or elements. Analysis is possible only after acquiring knowledge , comprehension and application abilities by the learner.It is the breaking down of communication into its constituent elements or parts.This includes the following mental processes

- a) Analysis of elements : It includes the identification of different elements included in a communication or information.
- b) Analysis of relationships: This includes the connections and interactions between elements and part of a communication or information.
- c) Analysis of organized principles : This includes the organization , systematic arrangements and structure which hold the communication together.

5) Synthesis

Synthesis is the mental ability of the learner to integrate the acquired, comprehend, applied and analyzed knowledge, information to a comprehensive whole.This ability is possible for the learner only after attaining lower level instructional objectives and so this becomes the next higher level of cognitive objectives.This involves the process of working with pieces, parts, elements etc. and arranging and combing them in such a way as to constitute a pattern or structure. This category includes the following

- a) Production of unique communication : The development of a communication in which the learner attempts to convey ideas, feelings, experiences etc to others.
- b) Production of a plan or proposed set of operations.: The developemt of a plan

of work or proposal of a plan of operations. It includes the ability to propose ways of testing hypothesis.

- c) Derivation of a set of abstract relations : Ability to formulate appropriate hypotheses based upon the analysis of factors involved and to modify such hypotheses in the light of new factors and considerations.

6) Evaluation

Evaluation is actually the judgement about a value of a material and methods for giving purposes. When the learner acquires knowledge about anything which is comprehend, applied, analyzed and synthesized in to an absolute whole, they will be able to perform their personal view point about the information in the format of judgement and personal value attachment. Evaluation is attaching worth or goodness or weakness of the information. By evaluation, a simple piece of information is mentally processed, into a higher order form of knowledge, after internalization. It is the most higher level and attainment of the other lower level objectives will help the learner to acquire this higher order mental ability. It includes the following mental processes,

- a) Judgement in terms of Internal evidence : Evaluation of the accuracy of a communication from such evidences as logical accuracy and internal standards. It is the ability to assess general probability of accuracy or reporting fact and the other internal criterion.
- b) Judgement in terms of external criteria : It includes judging by external standards, the ability to compare a work with the highest known standards in its field.

Instructional objectives in Affective domain

These are the objectives which emphasis a feeling tone, an emotion or a degree of acceptance or rejection. Affective objectives vary from simple attention to selected phenomena to complex, but internally consistent qualities of character and conscience. We found a large number of such objectives in the literature expressed as interests, attitudes, appreciations, values and emotional sets or bias. Generally affect relates to the learners emotional expression regarding what is acquired. It is a fact that instructional objectives in the affective domain is hard to achieve and manipulate. This classification is given by Bloom and his associate Krathwohl.

1) Receiving :

It includes sensitivity to the existence of a certain phenomenon or stimulus and the learners willingness to receive or attend. This category includes three sub divisions, they are:

- a) Awareness: The learner will merely be conscious of something that they take into account a situation, phenomenon, object or stage of affairs.
- b) Willingsness to respond: The behavior of being willing to tolerate a given

stimulus and it involves a neutrality or suspended judgement towards the stimulus.

- c) Controlled or selected attention: The differentiation of the aspect of a stimulus which is perceived as clearly marked off from adjacent impressions.

2) Responding

At this level, we are concerned with responses which go beyond merely attending to the phenomenon and this is the category that many teachers will find best describes their interest objectives. The sub levels of this category

- a) Acquaintance in responding: The learners make the response, but they are not fully accepted the necessity for doing so.
- b) Willingness to respond: The learner is sufficiently committed to exhibiting the behavior that he /she does so on his/her own or voluntarily.
- c) Satisfaction in response : The behavior is accomplished by a feeling of satisfaction, an emotional response, generally of pleasure, zest or enjoyment

3) Valuing

Learners set guidelines for controlling their own behavior and commitment to the underlying value guiding the behavior. The sub categories under this are:

- a) Acceptance of a value : At this level we are concerned with the inscribing of worth to a phenomenon, behavior etc. It is a position that is somewhat tentative, but it is consistent enough so that the person is perceived by others as holding the belief or value.
- b) Performance of a value : Behaviour at this level implies not just acceptance of a value to the point of being willing to be identified with it , but the individual is sufficiently committed to the value to pursue it, to seek it out, to want it.
- c) Commitment : The person who displays behavior at this level is clearly perceived as holding the value. He tries to convince others and seeks them to convert to his cause. There is a real motivation to act out this behavior.

4) Organization

This category is intended as the proper classification for objectives which describe the beginning of the building of a value system. It operates through following categories

- a) Conceptualization of value : This permits the individual to see how the value relates to those that already holds or to know one that is coming to hold.
- b) Organization of a value system : Individuals synthesises values from the organization of values. There should be an organization of values into a system.

5) Characterization by a value

Here the individual acts consistently in accordance with the values he has internalized. The sub categories are

- a) Generalized set: This gives an internal consistency to the system of attitudes and values at any particular moment.
- b) Characterization: It is the highest level in attitude formation. The values are imbibed and the individual has a consistent philosophy of life.

Instructional objectives in Psychomotor domain

Motion is a necessary condition of survival and independence. Locomotor behavior is needed to explore the environment and sensory motor activities are essential for the development of intelligence. Numerous taxonomies have been developed for the psycho motor domain with the taxonomies inspired by Bloom and Krathwohl. Simpson's and Harrow's classification is more widely use one.

Simpson's taxonomy of Psychomotor domain can be divided into six main categories.

1) Perception

This is the process of becoming aware of objects, qualities or relations by way of sense organs. This had three subdivisions. They are

- a) Sensory stimulation: Impingement of a stimulus upon one or more of the sense organs (auditory, visual, smell, taste, kinesthetic)
- b) Cue selection: Deciding to what cues one must respond in order to satisfy the particular requirements of task performance.
- c) Translation: Relation of perception of action in performing a motor act. This is the mental process of determining the meaning of cues received for action.

2) Set

It is the preparatory adjustment of readiness for a particular kind of action or experience.

The sub components are

- a) Mental set : Readiness, in the mental sense, to perform a certain motor act.
- b) Physical set : Readiness in the sense of having made the anatomical adjustments necessary for a motor act to be performed.

3) Guided response :

Overt behavioural act of an individual under the guidance of the instructor.

4) Mechanism:

Learned response has become habitual. It is a micro analyzes in which each step in the mechanism is properly examined and drilled.

5) Complex overt response:

The individual can perform a motor act that is considered complex because of the movement pattern required. A high degree of skill has been attained. The act can be carried out smoothly and efficiently. This act includes,

- a) Resolution of uncertainty: This act is performed without hesitation
- b) Automatic performance: The individual can perform a finely coordinated motor skill with a great deal of ease and muscle control

6) Adaptation and Originating:

At this level, the individual might originate new patterns of action in solving a specific problem.

Merits and demerits of Taxonomy Merits

Taxonomy can be useful in translating into practice the principle of comprehensiveness of evaluation by ensuring proper coverage of various aspects of pupil's growth in cognitive, affective and psychomotor domains. Identification of areas of inter-relationship among the three domains may be of particular significance in this regard. The logical nature of classification may be helpful in identifying and grading teaching-learning situation which can be an important source of selecting appropriate situation too. Curriculum development and preparation of instructional material can profit such a scheme of classification in different ways. The classification through its well defined criteria can provide a bridge for further communication among teachers and evaluators.

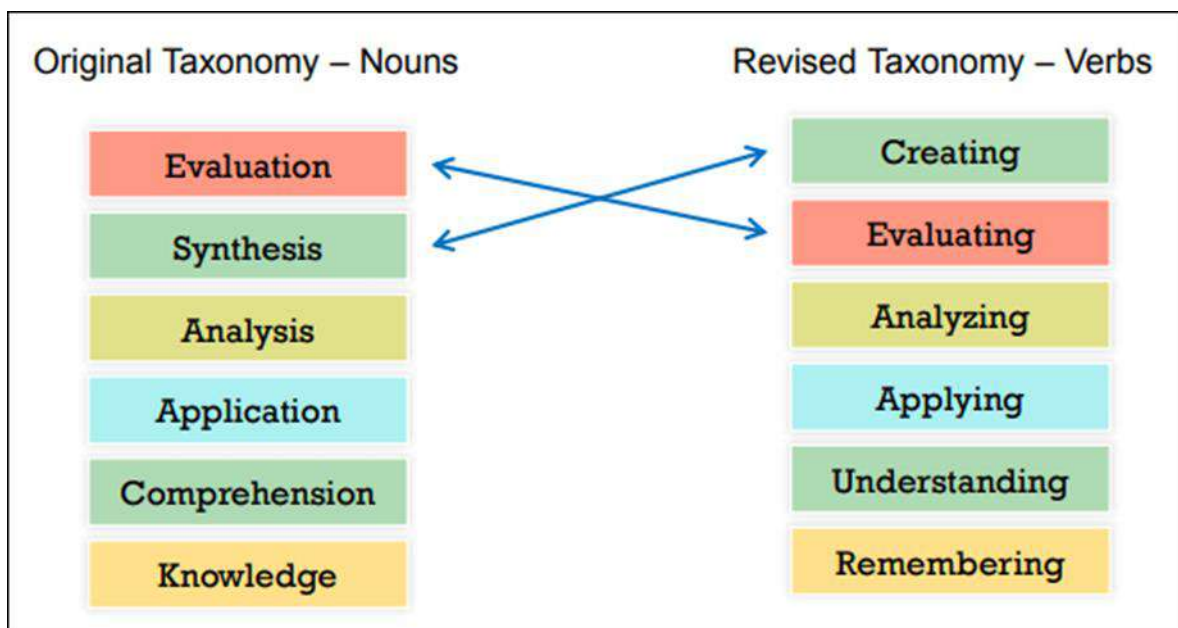
Demerits

Threefold classification of taxonomy is somewhat artificial as in practice because all the three domains are closely interconnected. There is not always agreement on the appropriate classification for certain behaviors. In this classification, there is a tendency to overstress "measurable behavior" and to disregard the importance of that work which are not measured. It is not applicable in all areas of curriculum and to all circumstances of learning. The hierarchical orders of cognitive objectives were questioned by experts.

Bloom's Revised Taxonomy

Former students of Bloom, Lorin Anderson and David Krathwohl revised Bloom's taxonomy and published in 2001. The revision is done only in the cognitive domain. The use of nouns was replaced by verbs and top level categories were rearranged. They are arranged below in increasing order, from lower order to higher order and they place creativity to be higher within the cognitive domain than evaluation. Each category has a number of subcategories containing key verbs associated with it, they are,

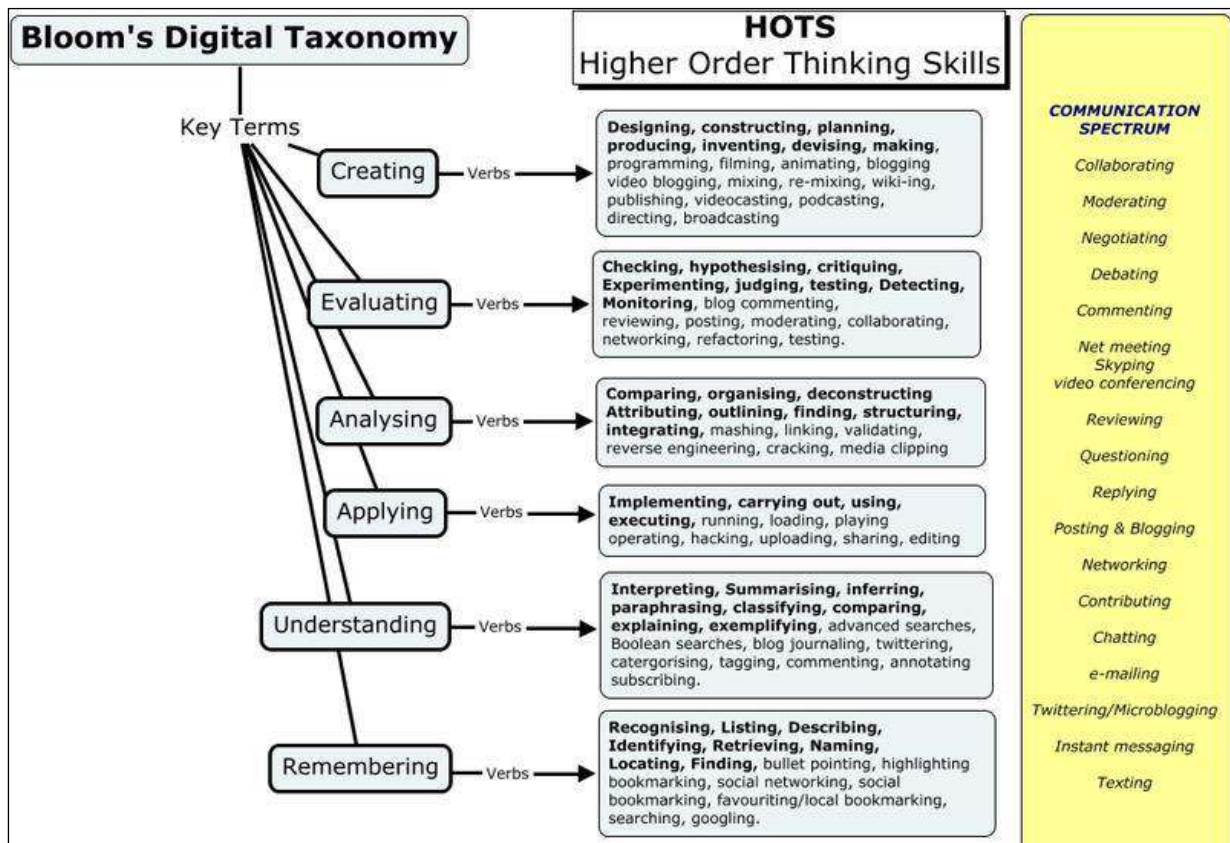
- Remembering:** recognizing, losing, describing, identifying, retrieving, naming, locating, finding
- Understanding:** interpreting, summarizing, inferring, paraphrasing, classifying, comparing, explaining, exemplifying.
- Applying:** implementing, carrying out, using, executing
- Analysing:** comparing, organizing, deconstructing, attributing, outlining, finding, structuring, integrating
- Evaluating:** Checking, hypothesizing, critiquing, experimenting, judging, testing, detecting, monitoring
- Creating:** Designing, constructing, planning, producing, inventing, devising, making.



Bloom's Digital Taxonomy

The pervasive development of ICT has changed the way of teaching and learning. Our students have become 21st century learners. In 2007, to reflect these changes, Andrew Churches further developed and refined Bloom's taxonomy to create Bloom's Digital Taxonomy by using technology and digital tools to facilitate learning. A taxonomy more aligned with 21st century learning. When using Blooms digital taxonomy, it helps to have a list of taxonomy verbs to know what actions define each stage of taxonomy, and this kind of engagement is known as Power Verbs. This

is useful for lesson planning, rubric making and many other teacher oriented task requiring planning and assessment strategies.



Conclusion

Benjamin S Bloom and his associates set up a taxonomic model of educational objectives based on the primary aspects of the domains of pupils growth. They are Cognitive domain Affective domain and Psychomotor domain. In each domain objectives are arranged from simple to complex in a hierarchical order. Lorin Anderson and David Krathwohl revised Bloom's taxonomy and published in 2001. The revision is done only in cognitive domain. The use of nouns was replaced by verbs and top level categories were rearranged .In 2007 Andrew Churches further developed and refined Bloom's taxonomy to create Bloom's Digital Taxonomy by using technology and digital tools to facilitate learning.

Summary

Taxonomy of educational objectives are intended to provide for classification of goals of our educational system. The idea of this classification is introduced by Dr. Benjamin s Bloom. He classified educational objectives into three domain, Cognitive, affective and psychomotor has three domains are interrelated and mutually dependent. The cognitive domain is concerned with knowing and it includes activities such as remembering and recalling knowledge, thinking, problem solving and creative. The affective domain is concerned with feeling. This domain includes those objectives which are concerned with changes in interest, attitudes and values and the development of appreciation and adjustment. The psychomotor

domain includes those objectives which deal with manual and motor skills. Behaviour which includes muscular action and requires neuro muscular coordination is grouped under this domain.

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FAQ

1. What is Comprehension?

Comprehension is the result of a mental process of the learner which enables them to transform the different forms of information's acquired by them to a more comprehensible format. Hence these classes of instructional objectives are considered as the second higher level of cognitive instructional objectives. Attainment of the lower level of objectives will help the learner to attain the objectives in a much more higher level. So comprehension is possible only after attaining the lower level objectives knowledge.

2. What is Responding in the affective domain?

At this level, we are concerned with responses which go beyond merely attending to the phenomenon and this is the category that many teachers will find best describes their interest objectives. The sub levels of this category

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3. What are Instructional objectives in psychomotor domain?

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4. What are the merits of Blooms Taxonomy?

Taxonomy can be useful in translating into practice the principle of comprehensiveness of evaluation by ensuring proper coverage of various aspects of pupil's growth, cognitive, affective and psychomotor. Identification of areas of inter-relationship among the three domains may be of particular significance in this regard. The logical nature of classification may be helpful in identifying and grading teaching-learning situation which can be an important source of selecting appropriate situation too. Curriculum development and preparation of instructional material can profit such a scheme of classification in different ways. The classification through its well defined criteria can provide a bridge for further communication among teachers and evaluators

5. What is meant by revised Bloom's taxonomy?

Former students of Bloom, Lorin Anderson and David Krathwohl revised Bloom's taxonomy and published in 2001. The revision is done only in the cognitive domain. The use of nouns was replaced by verbs and top level categories were rearranged. They are arranged below in increasing order, from lower order to higher order and they place creativity to be higher within the cognitive domain than evaluation. Each category has a number of subcategories containing key verbs associated with it, they are, Remembering, Understanding, Applying, Analysing, Evaluating and Creating.

QUIZ

- 1) _____ is the preparatory adjustment of readiness for a particular kind of action or experience.
 - A. Perception
 - B. Set
 - C. Guided response
 - D. Mechanism

- 2) Pupil makes use of a grid system to locate a place in a map. This is the example of
 - A. Knowledge
 - B. Application
 - C. Analysis,
 - D. Synthesis

- 3) _____ is the ability to understand or comprehend information.
 - A. Extrapolation
 - B. Interpretation
 - C. Translation
 - D. Application

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