UNIT # 02
OBJECTIVES AND ASSESSMENT

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OBJECTIVES

After studying this unit, you should be able to;

- describe the role of objectives and outcomes in the assessment of student achievement.
- explain the purpose of a test.
- explain levels of Cognitive Domain.
- develop achievement objectives according to Bloom Taxonomy of Educational objectives.
- identify and describe the major components of a table of specifications.
- identify and describe the factors which determine the appropriate numbers of items for each component in a table of specification.

INTRODUCTION

- Objectives are the desired outcomes of an effort. Guided by these specific objectives instructional activities are designed and subsequently assessment is carried out through different methods.
- The objective are key components for developing a test and guiding principles for assessment.
- Bloom's taxonomy provides a useful way of describing the complexity of an objective by classifying into one of the hierarchical categories from simplest to complex.
- Therefore, the process of developing a test should begin with the identification of content domain at first stage and development of table of specification at second stage.

Test

- A test is a device which is used to measure behaviour of a person for a specific purpose.
- Moreover it is an instrument that typically uses sets of items designed to measure a domain of learning tasks.
- Tests are systematic method of collecting information that lead to make inferences about the characteristics of people or objects.
- teacher prepares tests while sampling the items from a
- pool of items in such a way that it represents the whole subject matter.
- The main categories of tests are Objective Type and Subjective Type

Purposes of test

- Monitoring Student Progress
- Diagnosing Learning Problems
- Assigning Grades
- Classification and Selection of Students
- Evaluating Instruction

Objectives

A learning objective refers to the statement of what students will obtain through instruction of certain content. In other words 'an objective is a description of a performance you want learners to be able to exhibit before you consider them competent. An objective describes an intended result of instruction, rather than he process of instruction itself.' (Mager, p. 5)

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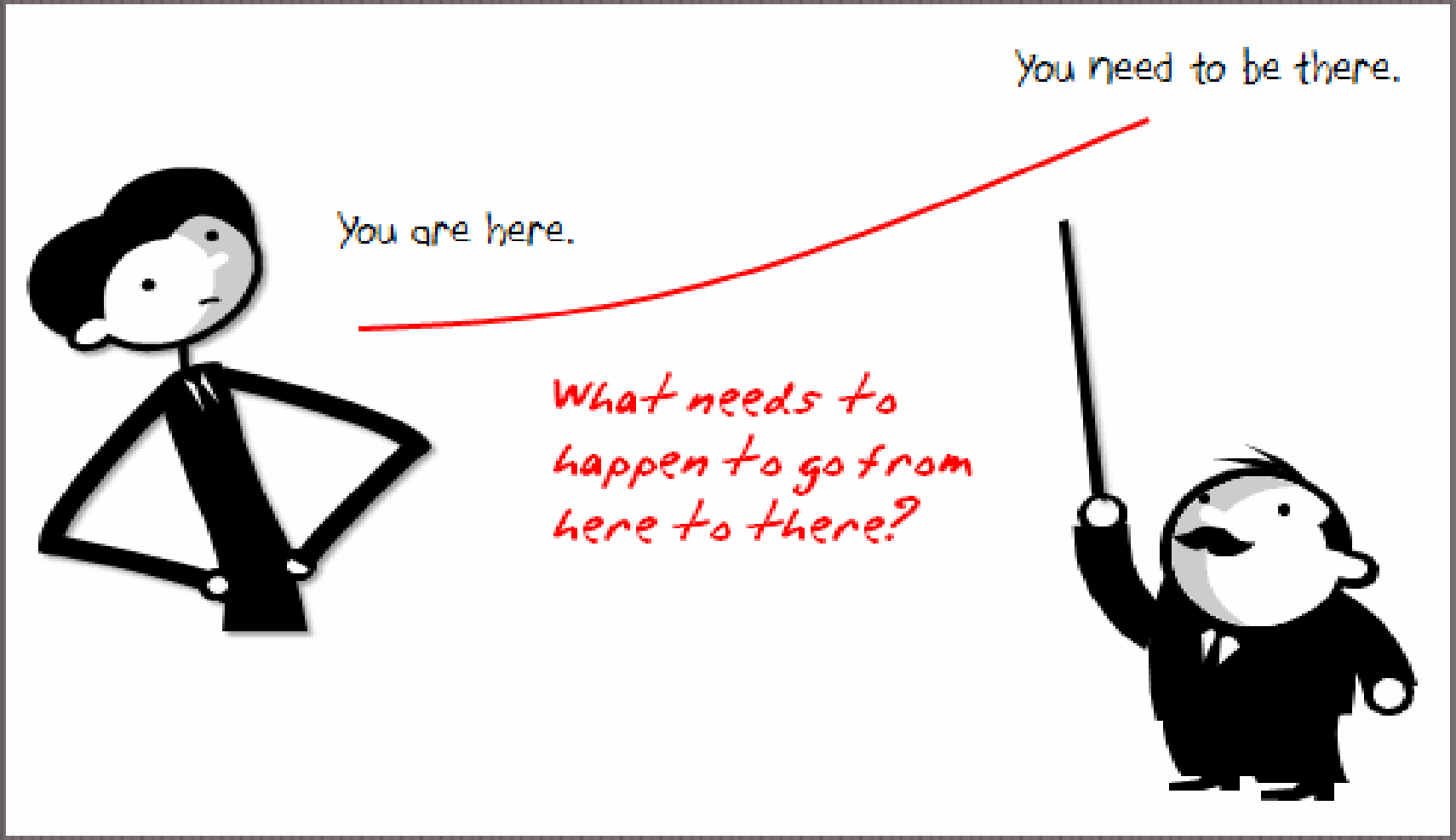

You need to be there.
You are here.
What needs to happen to go from here to there?

Characteristics/ Attributes of the Objectives

- **Behaviour** - Firstly, an objective must explain the competency to be learned, the intended change in the behaviour of the learners.
- **Criterion** - Secondly, an objective must clarify the intended degree of In other words objective should not only indicate the change in the behaviour of the students but also the level or degree of that change as well.
- **Conditions** - Thirdly, an objective should describe the conditions under which the learning will occur.

Taxonomy of Educational Objectives

- Benjamin Bloom established a hierarchy of educational objectives for categorizing level of abstraction of questions that commonly occur in educational settings (Bloom, 1965).
  The classification is generally referred to as Bloom'sTaxonomy.Taxonomy means 'a set of classification principles', or 'structure'.

1.Cognitive domain

: The cognitive domain (Bloom, 1956) involves the development of intellectual skills. This includes the recall or recognition of specific facts, procedural patterns, and concepts that serve in the development of intellectual abilities and skills. There are six levels of this domain starting from the simplest cognitive behaviour to the most complex. The levels can be thought of as degrees of difficulties. The followings are six levels in this taxonomy:

Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation.

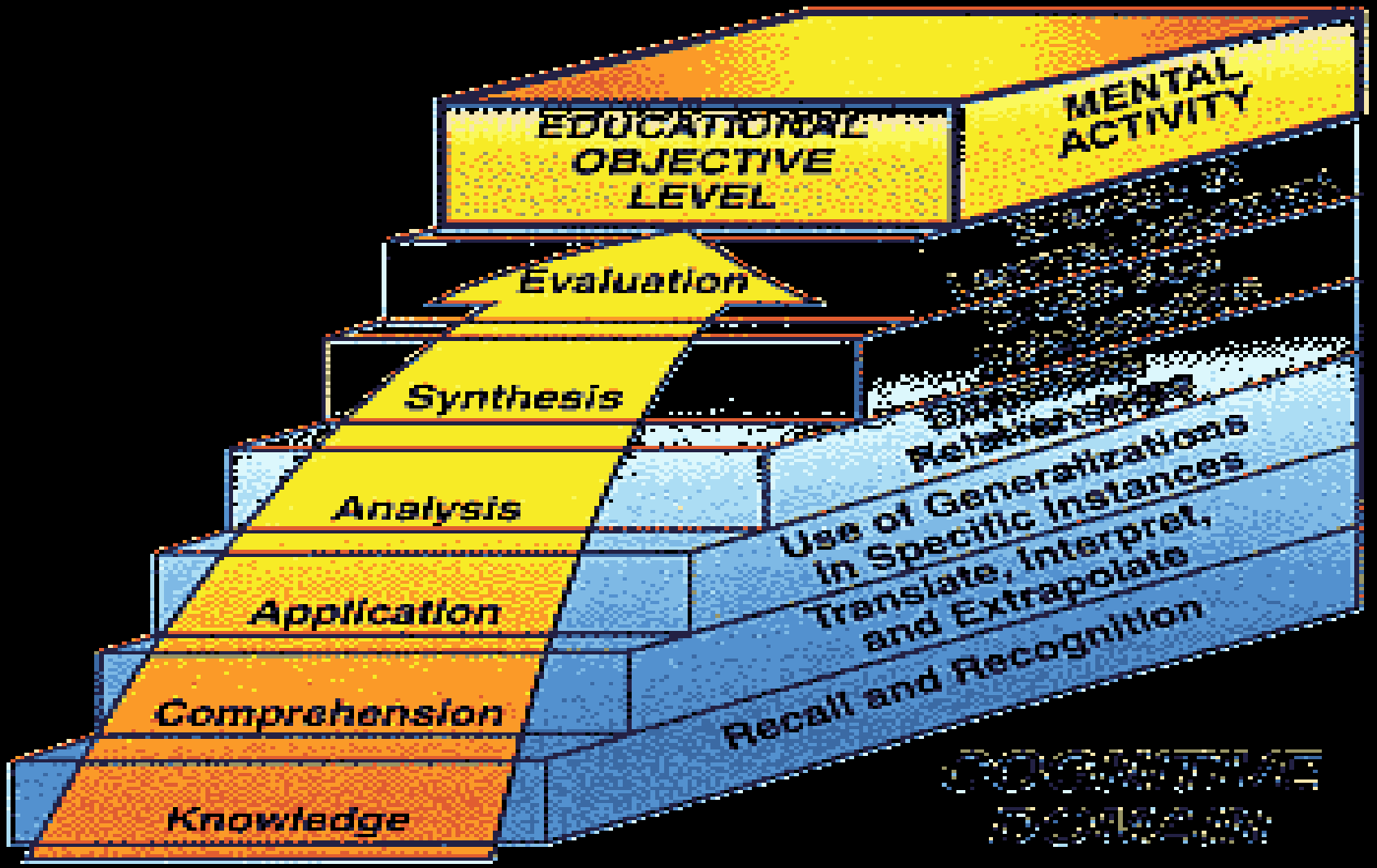
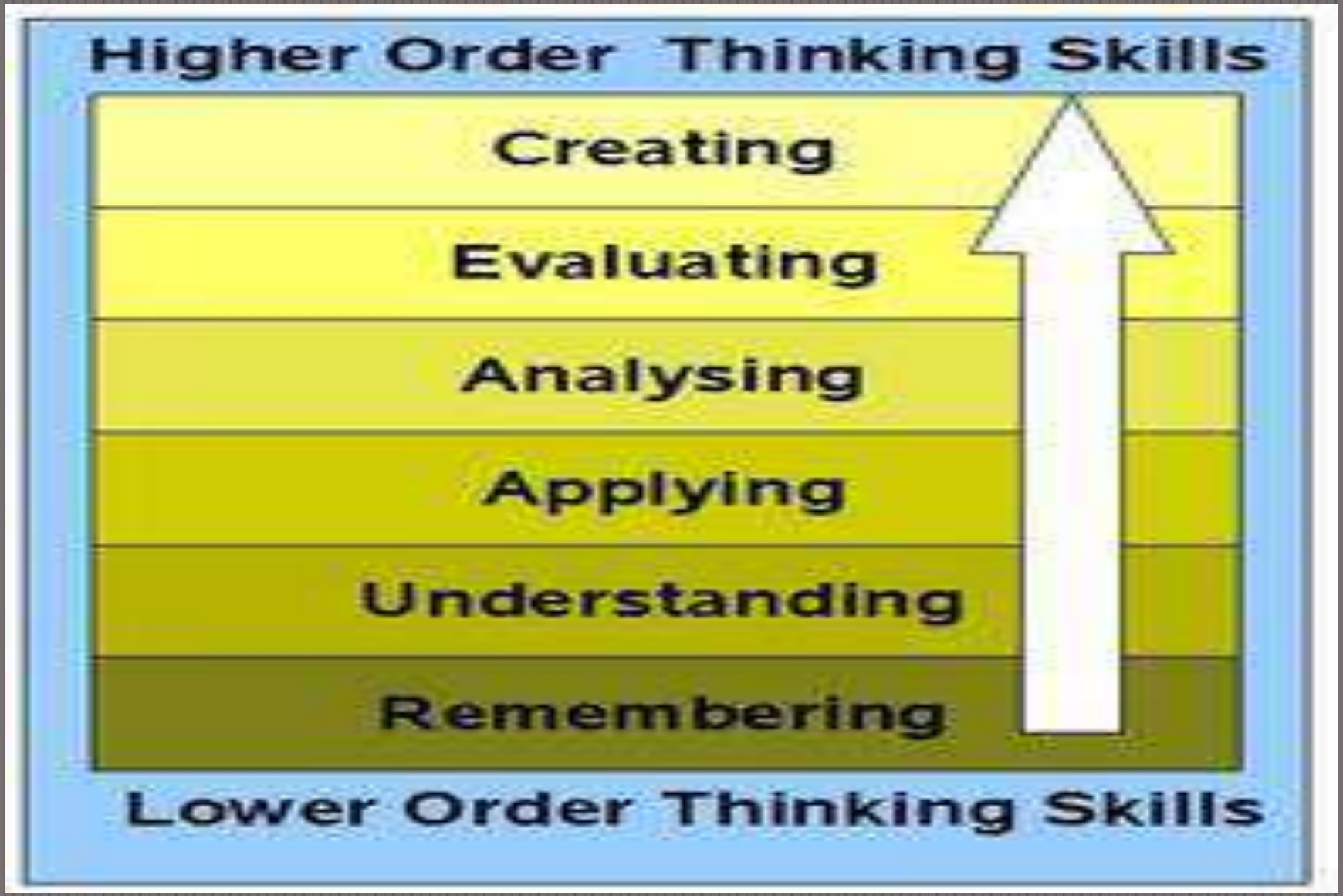


Figure 9-4. Bloom's hierarchical taxonomy for the cognitive domain (knowledge) includes six educational objective levels.

Bloom's Revised Taxonomy

Bloom's former students Lorin Anderson and David Krathwohl revised Bloom's Taxonomy in 1990. - Bloom's Revised Taxonomy was published in 2001. Key to this is the use of verbs rather than nouns for each of the categories and a rearrangement of the sequence within the taxonomy. They are arranged below in increasing order, from

Lower Order Thinking Skills (LOTS) → **Higher Order Thinking Skills (HOTS).**



Order of Thinking Skills

Writing Cognitive Domain Objectives

Learning Objective/ Level	Description	Action Verbs to be used to state objectives
Knowledge	The first level of learning is knowledge. Knowledge can be characterized as awareness of specifics and of the ways and means of dealing with specifics. The knowledge level focuses on memory or recall where the learner recognizes information, ideas, principles in the approximate form in which they were learned.	To arrange, to define, to describe, to identify, to list, to label, to name, to order, to recognize, to recall, to relate, to repeat, to reproduce, to state, to underline.

CONT...

Comprehension	Comprehension is the next level of learning and encompasses understanding. Has the knowledge been internalized or understood? The student should be able to translate, comprehend, or interpret information based on the knowledge.	To choose, to compare, to classify, to describe, to demonstrate, to determine, to discuss, to discriminate, to explain, to express, to identify, to indicate, to interpret, to label, to locate, to pick, to recognize, to relate, to report, to respond, to restate, to review, to select, to tell, to translate
Application	Application is the use of knowledge. Can the student use the knowledge in a new situation? It can also be the application of theory to solve a real world problem. The student selects, transfers, and uses data and principles to complete solve a problem.	To apply, to classify, to demonstrate, to develop, to dramatize, to employ, to generalize, to illustrate, to interpret, to initiate, to operate, to organize, to practice, to relate, to restructure, to rewrite, to schedule, to sketch, to solve, to use, to utilize, to transfer

CONT...

Analysis	Analysis involves taking apart a piece of knowledge, the investigation of parts of a concept. It can only occur if the student has obtained knowledge of and comprehends a concept. The student examines, classifies, hypothesizes, collects data, and draws conclusions.	To analyze, to appraise, to calculate, to categorize, compare, conclude, contrast, or criticize; to detect, to debate, to determine, to develop, distinguish, or deduce; to diagram, to diagnose, differentiate, or discriminate; to estimate, to examine, to evaluate, to experiment, to inventory, to inspect, to relate, solve, or test; to question
Synthesis	Synthesis is the creative act. It's the taking of knowledge and the creation of something new. It is an inductive process—one of building rather than one of breaking down. The student originates, integrates, and combines ideas into something that is new to him/her.	To arrange, to assemble, to collect, to compose, to construct, to constitute, to create, to design, to develop, to device, to document, to formulate, to manage, to modify, to originate, to organize, to plan, to prepare, to predict, to produce,

CONT.....

Evaluation	Evaluation is judgment or decision making. The student appraises, assesses or criticizes on a basis of specific standards and criteria.	To appraise, argue, or assess; to attach, to choose, to contrast, to consider, to critique, to decide, to defend, to estimate, to evaluate, to judge, to measure, to predict, to rate, to revise, to score, to select, to support, to standardize, to validate, to value, to test

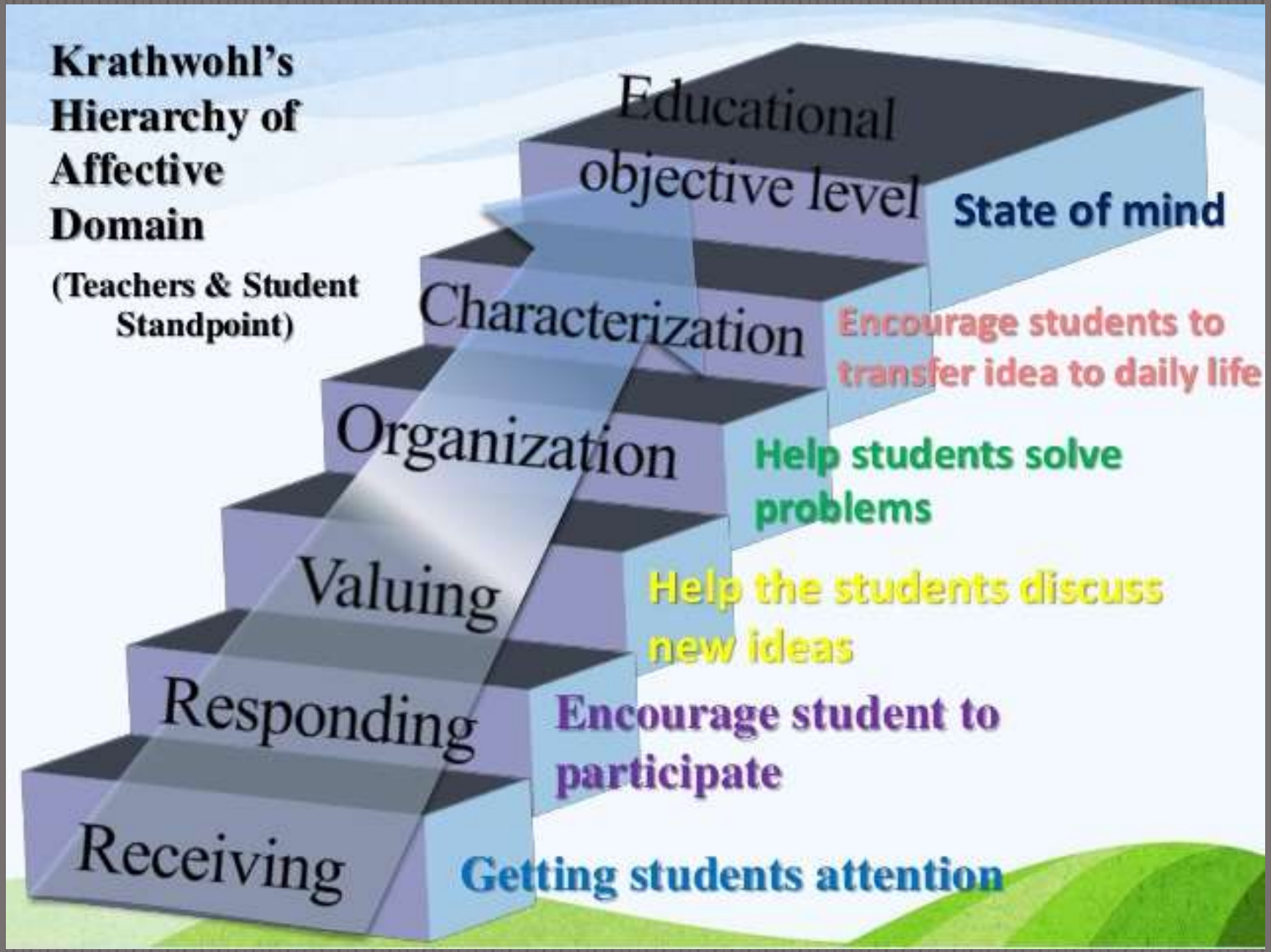
2.Affective domain

Krathwohl's 1964 ,The affective domain is related to the manner in which we deal with things emotionally, such as feelings, values, appreciation, enthusiasms, motivations, and attitudes.

The five levels of this domain include:

receiving, responding, valuing, organization, and characterizing by value.

Level	Description
RECEIVING	Involves being aware of and willing to freely attend to a stimulus
RESPONDING	Involves active participation.
VALUING	Refers to voluntarily giving worth to an object, phenomenon or stimulus.
COMMITMENT (Organization and Characterization)	Involves building an internally consistent value system and freely living by it.

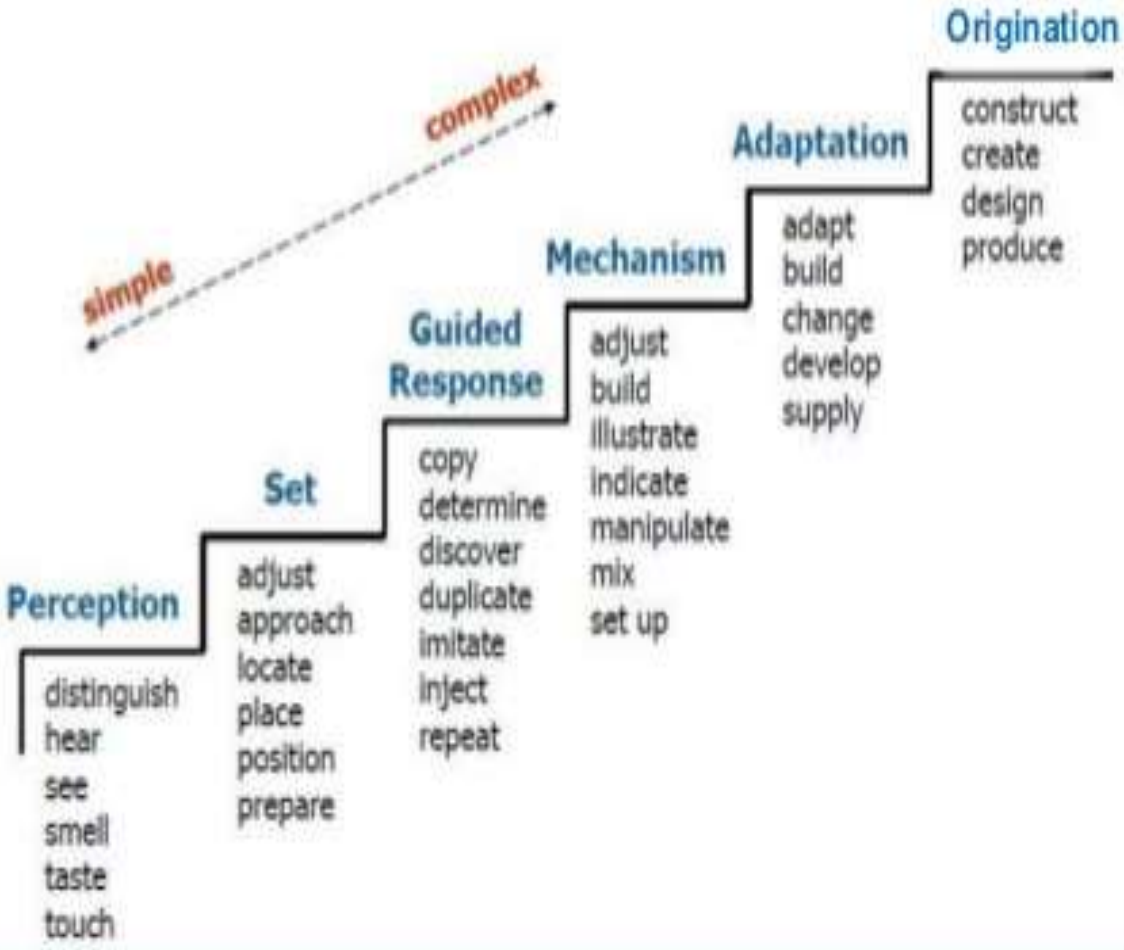

Krathwohl's Hierarchy of Affective Domain
(Teachers & Student Standpoint)
Educational objective level
State of mind
Characterization
Encourage students to transfer idea to daily life
Organization
Help students solve problems
Valuing
Help the students discuss new ideas
Responding
Encourage student to participate
Receiving
Getting students attention

3.Psychomotor domain

Simpson 1972, Focus is on physical and kinesthetic skills. The psychomotor domain includes physical movement, coordination, and use of the motor-skill areas. Development of these skills requires practice and is measured in terms of speed, precision, distance, procedures, or techniques in execution. There are seven levels of this domain from the simplest behaviour to the most complex. Domain levels include: Perception, set, guided response, mechanism, complex or overt response, adaptation.

Psychomotor Domain

"What Should I Be Able to Do?"



Simpson, E. (1972). *The classification of educational objectives in the psychomotor domain: The psychomotor domain.*

Level	Definition	Possible Verbs
1. Perception	The ability to use sensory cues to guide physical activity	Distinguish, identify, select
2. Set	The readiness to act; requires the learner to demonstrate an awareness or knowledge of the behaviors needed to carry out the skill	Assume a position, demonstrate, show
3. Guided response	The early stage of learning a complex skill; includes imitation; can complete the steps involved in the skill as directed	Attempt, imitate, try

Cont...

4. Mechanism	The ability to perform a complex motor skill; the intermediate stage of learning a complex skill	
5. Complex overt response	The ability to perform the complete psychomotor skill correctly	Carry out, operate, perform
6. Adaptation	Can modify motor skills to fit a new situation	Adapt, change, modify, revise
7. Origination	The ability to develop an original skill that replaces the skill as initially learned	Create, design, originate.

Modification of Simpson by the University of Mississippi School of Education

Harrow, A. (1972). *Taxonomy of the psychomotor domain. A guide for developing objectives behavioral*. NewYork:McKay.

Level	Definition	Possible Verbs
1. Reflex movement	Segmental, inter segmental, and supra segmental reflexes	Respond
2. Basic-fundamental movements	Loco motor movements, non - loco motor movements, manipulative movements	

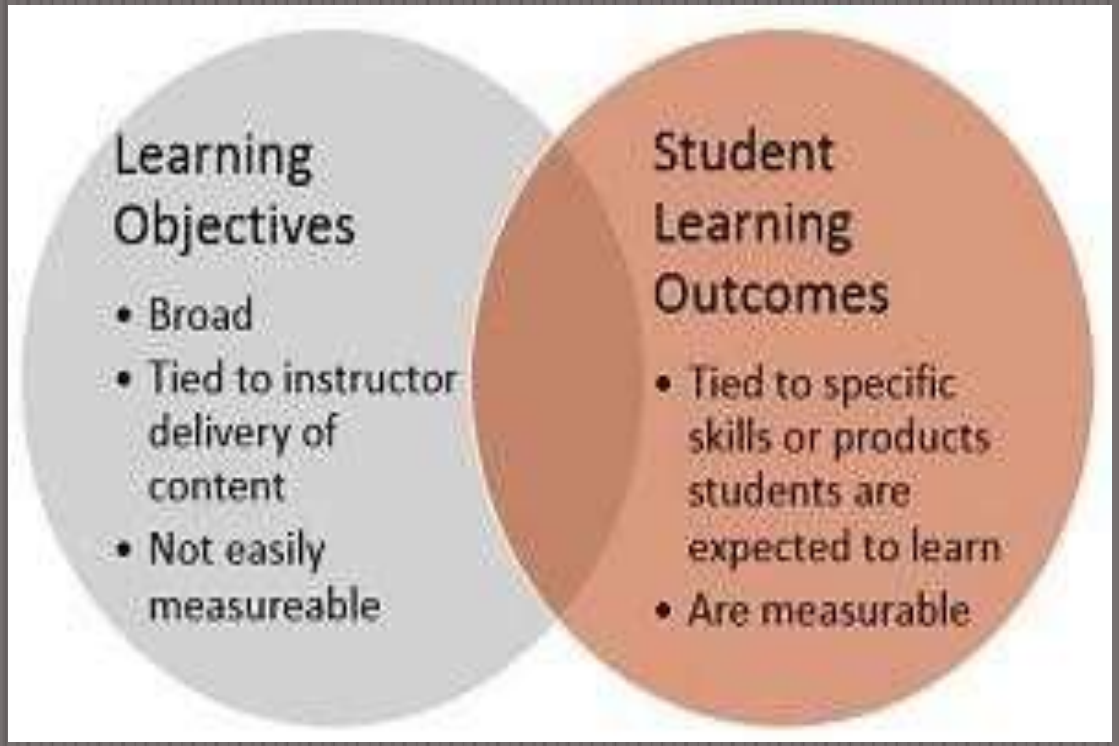
3. Perceptual abilities	Kinesthetic, visual, auditory and tactile discrimination and coordinated abilities	
4. Physical abilities	Endurance, strength, flexibility, and agility	
5. Skilled movements	Simple, compound, and complex adaptive skills	Assemble, calibrate, construct, dissect
6. Non discursive communication	Expressive and interpretive movement	Arrange, compose, create, originate, design

Learning Outcomes

- A learning outcome is a written statement of what the successful student/learner is expected to be able to do at the end of the module/course unit, or qualification. (Adam,2004)
- Statements of what a learner can be expected to know, understand and/or do as a result of a learning experience. (QCA /LSC, 2004, p.12)

Difference between Objectives and Learning Outcomes

- objectives are concerned with teaching and the teacher's intentions.
- Learning outcomes are concerned with students learning.



Importance of Learning Outcomes

- Help students to learn more effectively.They know where they stand and the curriculum is made more open to them.
- Make it clear what students can hope to gain from a particular course or lecture.
- Help instructors select the appropriate teaching strategy
- Assist in setting examinations based on the content delivered.
- Help in the selection of appropriate assessment strategies.

SOLO Taxonomy

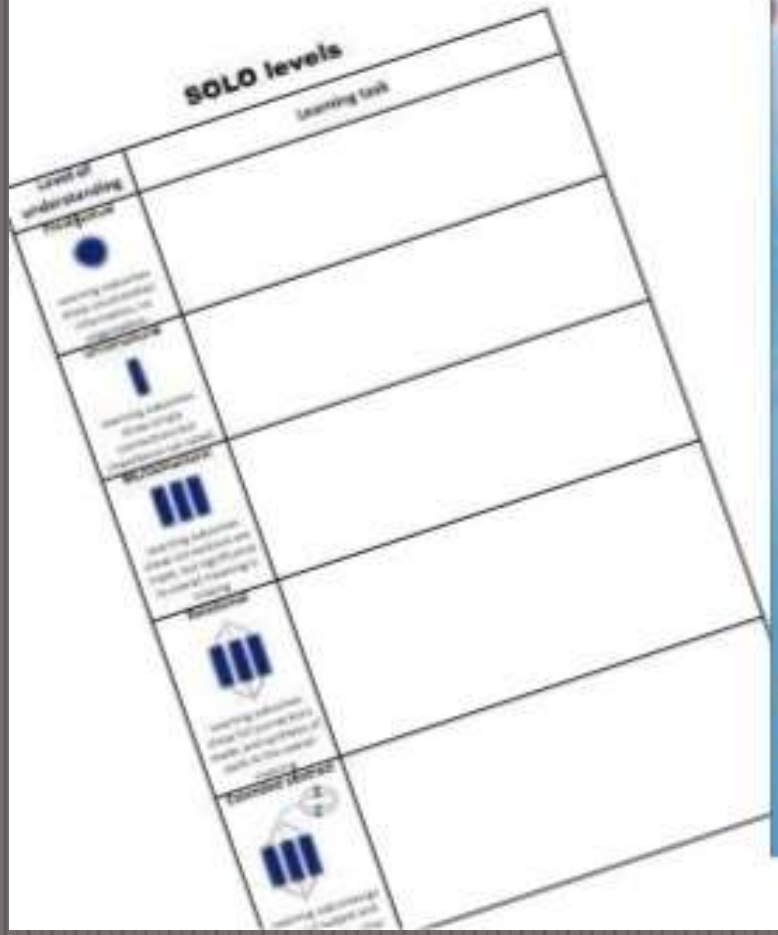
- SOLO taxonomy was developed by Biggs and Collis (1982) Stands for Structure of Observed Learning Outcomes

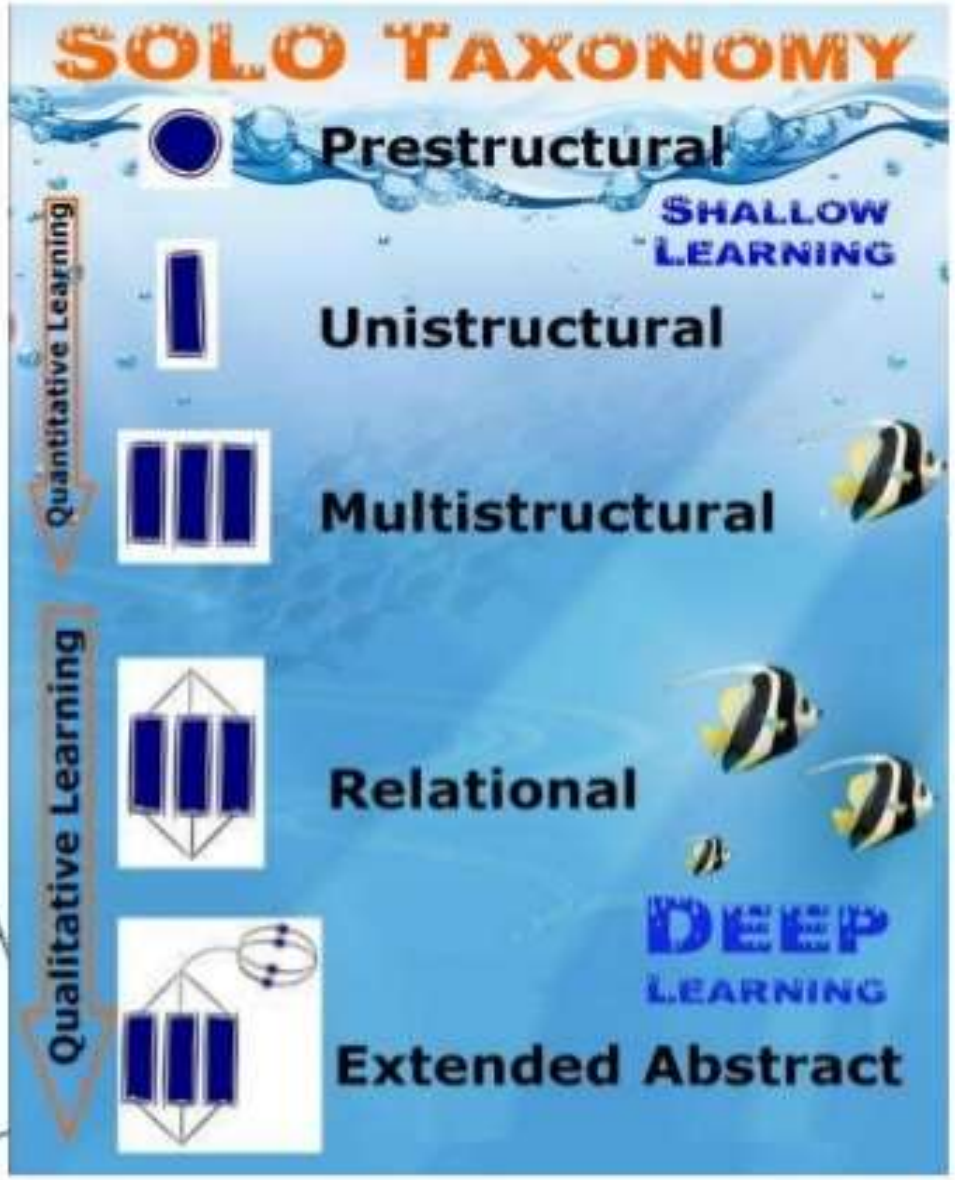
 Pre-Structural	 Uni-Structural	 Multi-Structural	 Relational	 Extended Abstract
I don't really know anything about this.	I know one thing about this.	I know three or more things but I'm not sure when or why to use it.	I can do this and I know when and why I should use this.	I am able to model or teach this to others. I can even use what I know in other contexts.

What is it?

SOLO (Structure of Observed Learning Outcomes) is a model of learning that helps develop a **common understanding** & **language of learning** that helps teachers (and students) understand the learning process.

Making it visible





SOLO TAXONOMY
(after Biggs and Collis 1982)

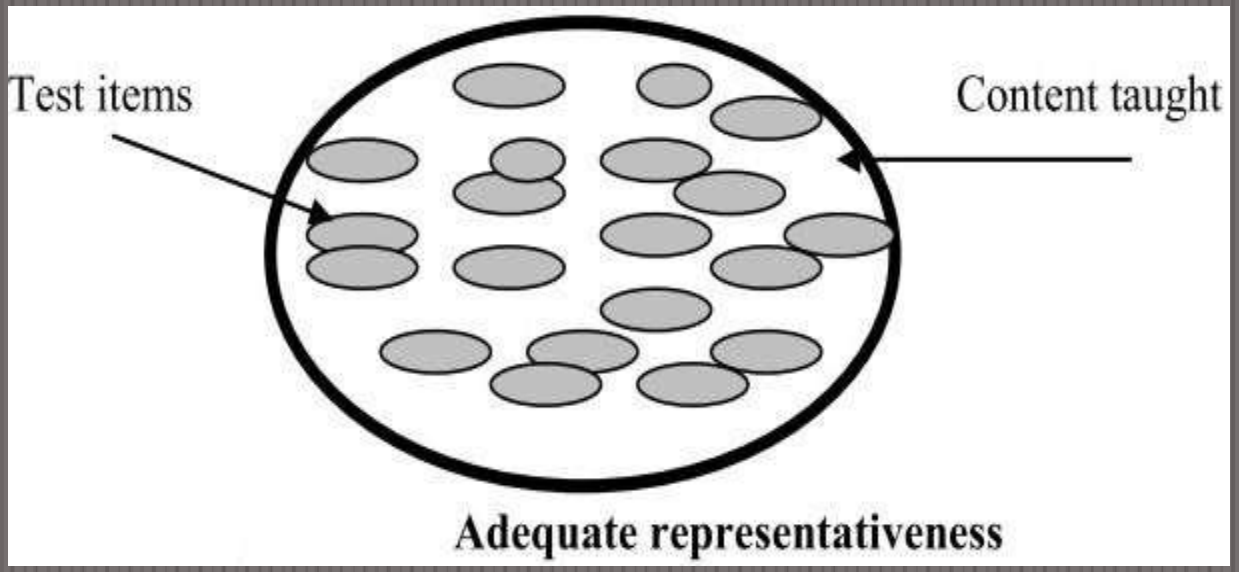
Levels of understanding displayed as the student learns	Indicative Verbs	Phase of learning
Extended Abstract Student conceptualizes at a level extending beyond what has been dealt with in the actual teaching. Can generalize to a new area.	Theorise Generalise Hypothesise Reflect	**Qualitative Phase** The detail in the responses becomes integrated into a structural pattern.
Relational Indicate orchestration between facts and theory, action and purpose. Understanding of several components which are integrated conceptually. Can apply the concept to familiar problems or work situations	Compare/contrast Explain causes Analyse Relate Apply	
Multi-structural Indicates understanding of boundaries but not of systems. Understanding of several components but the understanding of each is discreet. Disorganised collection of ideas or concepts around an issue. Has not been able to relate the items in the list.	Enumerate Describe List Combine Do algorithms	**Quantitative Phase** The amount of detail in the student's response increases.
Uni-structural Concrete, minimalistic understanding of an area. Focuses on one conceptual issue in a complex case.	Identify Do simple procedure	
Pre-structural No understanding demonstrated.	Misses the point	

Application

- Curriculum design
  - Designing effective learning outcomes
- Formative
  - Structuring questions to encourage deeper learning
  - Differentiating learning tasks
- Summative
  - Assessing the level of understanding more effectively
    - Reflective Journals
    - Dissertations
    - Presentations

Preparation of Content Outline

- Content refers to the major matter that will be included in a measuring device. Selection and preparation of content also depends on the type of decisions a teacher has to make about the students.
- A teacher should know that items selected for the test come from instructional material which a teacher has covered during teaching.



PRINCIPLES FOR TEST CONTENT

1) Purpose of the test (diagnostic test, classification, placement, or job employment)
2) Representative sample of the knowledge, behaviour, or skill domain being measured.
3) Relevancy of the topic with the content of the subject
4) Language of the content should be according to the age and grade level of the students.
5) Developing table of specification.

Preparation of Table of Specification

- Table of specification specifies the content of a test.
- It is a two-way framework which ensures the congruence between classroom instruction and test content. This is one of the most popular procedures used by test developers for defining the content-domain.
- One dimension of the test reflects the content to be covered and other dimension describes the kinds of student cognitive behaviour to be assessed.

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Table 2.2 General Table of Specification

Number of Test Items for Each Cognitive Level

Topics	Knowledge	Comprehension	Application	Analysis	Total
Topic 1	5	2	2	3	**12**
Topic 2	3	3	4	2	**12**
Topic 3	2	2	3	2	**9**
Topic 4	3	3	1	1	**8**
Topic 5	1	2	1	1	**5**
Topic 6	2	2	0	0	**4**
Total	**16**	**14**	**11**	**9**	**50**

THANK YOU FOR LISTENING