EDUCATIONAL PSYCHOLOGY

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BEHAVIOURAL VIEWS OF LEARNING

Referenced:
Woolfolk : Educational Psychology
Matlin: Cognition

What is Learning ?

- Learning occurs when experience causes a change in a person's knowledge or behavior.
- Learning: process through which experience causes permanent change in person's knowledge or behavior.
- Changes simply caused by maturation, illness, fatigue, or hunger are excluded from a general definition of learning.
- Behavioral theorists emphasize the role of environmental stimuli in learning and focus on behavior – observable responses. Behavioral learning processes include contiguity learning, clasical conditioning, operant conditioning, observational learning.

Classical Conditioning

- Association of automatic responses with new stimuli by strengthened or weakened in the consequences or the antecedents.
- A previously neutral stimulus is repeatedly paired with a stimulus that evokes an emotional or physiological response. Later, the previously neutral stimulus alone evokes the response – that is, the neutral stimulus is conditioned to bring forth a conditioned response. The neutral stimulus has become a conditioned stimulus.

Stimulus - Response

- Neutral stimulus: stimulus not connected to a response.
- Unconditioning Stimulus (US): stimulus that automatically produces an emotional or physiological response
- Conditioning Stimulus (CS): stimulus that evokes an emotional or physiological response after conditioning.
- Unconditioning Response (UR): naturally occurring emotional or physiological response
- Conditioning Response (CR): learned response to a previously neutral stimulus.

Operant Conditioning

- Trying new responses; learning in which voluntary behaviours.
- People learn through the effects of their deliberate responses. For an individual, the effects of consequences following an action may serve as either reinforcers or punishers.
- A consequence is defined as a reinforcer if it strengthens or maintains the response that brought it about, but as a punishment if it decreases or suppresses the response that brought it about.

Methods for Encouraging Behaviour

- Reinforcing with Teacher attention
- Selecting reinforcers.
- Shaping: reinforcing each small step of progress toward a desired goal of behaviour.
- Positive practice: practising correct responses immediately after errors.

Coping with undesirable Behaviour

- Negative reinforcement: strengthening behaviour by removing an aversive stimulus.
- Positive reinforcement: strengthening behaviour by presenting a desired stimulus after the behaviour.
- Satiation: to repeat problem behaviour past the point of interest or motivation.
- Reprimands. Criticisms for misbehaviour, rebukes.
- Response cost: punishment by loss of reinforcers.
- Social isolation: removal of a disruptive students for 5 to 10 minutes.
- Some cautions: punishment (process that weakens or suppresses behaviour).

Behavioural Approaches to Teaching

- Mastery Learning: an approach to teaching and grading that requires students to achieve specific objectives before moving to the next unit or topic, it is based on the assumption that every student is capable of achieving most of the objectives if given enough time and proper instruction.
- Group Consequences: Reinforcers or punishments given to a class a whole for adhering or violating rules of conduct
- Token Reinforcement Programs: Programs in which tokens earned for both academic work and positive classroom behaviour can be exchanged for some desired reward (token of appreciation).
- Contingency Contract Program: A formal agreement, often written and signed, between the teacher and an individual student specifying what the student must do to earn a particular reward.

Recent Approaches:

- Self-management: use of behavioral learning principles to change one's behaviour by using goal setting, monitoring and evaluating progress, self-reinforcement (providing yourself with positive consequences, contingency on accomplishing particular behaviour).
- Cognitive behaviour modification: procedures based on both behavioural and cognitive learning principles for changing one's own behaviour by using self-talk and self- instruction. For this reason, more cognitive than a behavioural approach.

Theories of Learning

1. Behaviourism : Classical Conditioning (Pavlov)
   Operant Conditioning (Skinner)
2. Social Cognitivism: interaction cognitive – behavior – environment: modelling,imitation (Bandura)
3. Information processing: attention, memory, thinking, cognitive (Broadband).
4. Cognitive Constructivism: stages of cognitive (Piaget).
5. Social Constructivism: learning together toward knowledge (Vigotsky)

Aspect	Behaviorism	Cognitivism	Humanism	Social Learning
Learning theorists	Thorndike,Pavlov, Watson, Guthrie, Tolman, Skinner	Koffka, Kohler, Ausubel, Bloom Piaget, Vigotsky	Maslow, Rogers, Freire	Bandura, Lave and Wenger, Solomon
View of the learning process	Change in behaviour	Internal mental process (insight, info processing, memory, perception	A personal act to fulfil potential.	Interaction, observation in social contexts.
Locus of learning	Stimuli in external environment	Internal cognitive structuring	Affective and cognitive needs	Learning is in relationship between people, behavior, and environment.
Purpose in education	Produce behavioural change in desired direction	Develop capacity and skills to learn better	Become self-actualized, autonomous	Full participation in communities of practice
Educator's role	Arranges environment to elicit desired response	Structures content of learning activity	Facilitates development of the whole person	Works to communities of practice in which conversation and participation can occur.
Manifestations in learning	Behavioural . Competency - based education. Skill dev & training	Cognitive developm, Intelligence, memory, Learning how to learn	Andragogy, Self-directed , Participatory , Emancipatory learning	Socialization, Social participation, Associationalism, Conversation

COGNITIVE VIEWS OF LEARNING

Referenced:
Woolfolk in Educational Psychology
Matlin in Cognition

The Cognitive Perspective

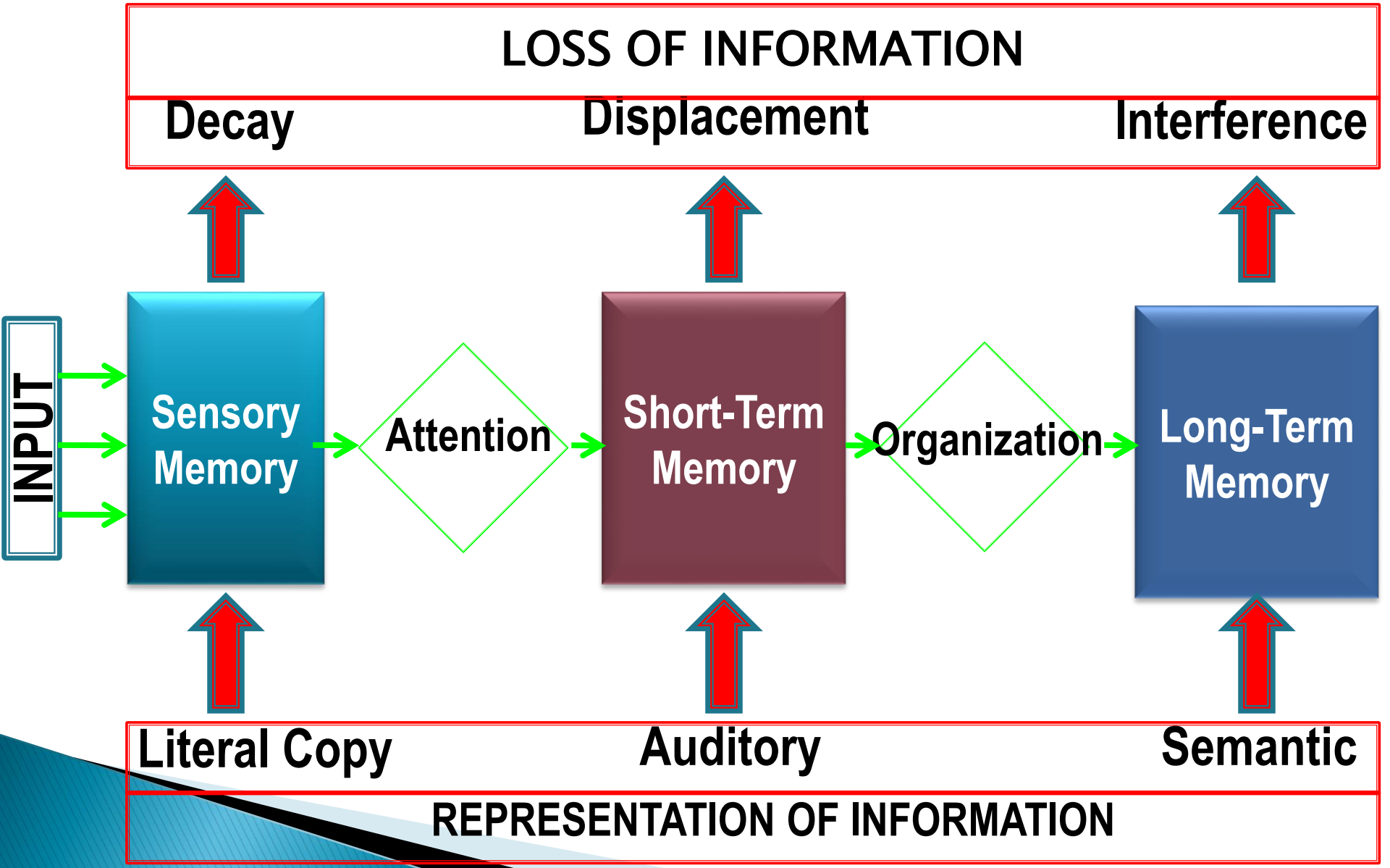
- According to the Cognitive view, knowledge is learned, and changes in knowledge make changes in behaviour possible.
- According to the Behavioural view, the new behaviours themselves are learned.
- Both Behavioural and Cognitive theorists believe that reinforcement is important in learning, but for different reasons. The strict Behaviourist maintains that reinforcement strengthens responses. The Cognitive theorists see reinforcement as a source of feedback about what is likely to happen if behavior are repeated or changed – as a source of information.

- The Cognitive approach suggests that one of the most important elements in the learning process is knowledge the individual brings to the learning situation.

- What we already know determines to a great extent what we will pay attention to, perceive, learn, remember, and forget.

- The human brain seems to both impact and be impacted by learning. For example, individuals who regularly complete tasks such as taxi driving develop certain regions of the brain more than others who do not engage in such activities.
- Research also suggests that learning changes communication among neurons. These changes enable children to engage in complex tasks such as integrating past and present experiences.

INFORMATION PROCESSING THEORY



Sensory Memory (SM)

- SM holds information in relatively unprocessed form: iconic & echoic memory.
- SM store material for a shorter of time, information is stored in a raw form, accurate, relatively passive.
- Iconic memory has been repeatedly demonstrative. It lasts about 200 – 400 milliseconds, but is roughly as helpful as 100 miliseconds of additional time.
- Echoic memory has been demostrated with a variety of techniques, it seems to last about 2 – 3 seconds.
- Echoic memory: short auditory stored and long auditory stored. Location of the echoic memory in the auditory cortex.

Compare of SM – STM

- Items remain in SM for about 2 seconds or less, in STM for as long 30 seconds.
- Information in SM is raw and unprocessed, in STM can be manipulated (ex: by rehearsal, comparison, or changing the orders of items)
- Information in SM a fairly accurate, in STM distorted and inaccurate.
- Information passively registered in SM, but it is actively selected for entry into STM.

Long-Term Memory (LTM)

- Declarative knowledge is knowledge that can be declared, usually in words or other symbols. Declarative knowledge is “knowing that” something is the case.
- Procedural knowledge is “knowing how” to do something, it must be demonstrated.
- Self-regulatory knowledge is “knowing when and why” to apply your declarative and procedural knowledge.

Long-Term Memory (LTM)

- The way you learn information in the first affects its recall later.
- Another view of memory is determined by how information completely is processed.
- One important requirement is to integrate new material with knowledge already stored in LTM using elaboration, organization, imagery,context.
- The duel coding theory suggests that information coded both verbally and visually is easier to remember. Picture and words helps students learn as long as they are well organized and do not overload working memory.

Why do we forget?

- Information lost from working memory truly disappears, but information in LTM may be available, given the right cues.
- Information appears to be lost from LTM through time decay (neural/muscles connections), disused, and interference.

Memory Improvement

- **Mnemonic** : repetition, sentence reading & generation, imagery.
- **Method of Loci**: visualizing, making up and image to place in a specific sequence, associating the items - one by one- with the corresponding lacotion in memory.
- **Organization**: encoding to familiar units and meaningful, chunking, hirarchy, the first letter, key words, narrative, etc.
- **External memory aids**: list, bookmark, asking someone else, commercial memory aids: alarm, card, films, mindmapping, etc.
- **Pratice**: pratice makes perfect: how long did you spend studying.
- **Multimodal** : say aloud, ask the questions, discussion, cooperative learning, conversation, rhyme, etc.
- **Metamemory**: you need to know what kind of strategies work best for you (strenghts & weaknesses): how to plan your study activities, how to regulate your attention, how to monitor wether you are understanding, how the material you are reading

What's Development?

- Development is change from conception to death (A to Z)
- Human development devided into aspects:
  - Physical development : changes in body structure
  - Personal development : changes in personality
  - Social development : changes in relates to others
  - Cognitive development : changes in thinking

What are principles of Development?

- People develop at different rates
- Development is relatively orderly
- Development takes place gradually

What's Lateralization of Brain?

- Lateralization is the specialization of two sides of brain/hemispheres.
- The right hemisphere in visual and spatial
- The left hemisphere in language
- The various parts and system of the brain work together to learns and perform complex activities, ex: reading, speaking, construct understanding, etc.

What are functions of Brain?

- Receiving signals from sense organs (such as visual or auditory signals).
- Controlling voluntary movement
- Forming associations.

Piaget's Cognitive Development

- Piaget's theory of cognitive development is based on the assumption that people try to make sense of the world and actively create knowledge through direct experience with objects, people, and ideas.
- Maturation, activity, social transmission, and the need for equalibrium all influence the way thinking processes and knowledge develop.
- Thinking processes and knowledge develop through changes in the organization of thought (the development of schemes) and through **adaptation** including the complementary processes of **assimilation** (incorporating new information into existing schemes) and **accommodation** (changing existing schemes).

Piaget's Stages of Cognitive Development

Sensorimotor Stage (0 – 2 years)

- Begins make use of imitation, memory, and thought
- Begins to recognize that objects do not cease to exist when they are hidden.
- Move from reflex actions to goal-directed activity

Preoperational Stage (2 – 7 years)

- Gradually develops use of language and ability to think in symbolic form
- Able to think operations through logically in one direction
- Has difficulties seeing another person's point of view.

Concrete-operational Stage (7 – 11 years)

- Able to solve concrete problems in logical fashion
- Understand laws of conservation and able to classify & seriate
- Understand reversibility

Formal-operational Stage (11 >)

- Able to solve abstract problems in logical fashion
- Becomes more scientific in thinking
- Develops concerns about social issues, identity.

Implications of Piaget's Theory for Teachers

- **Piaget's fundamental insight was that individuals construct their own understanding: learning is a constructive process.**
- **At every level of cognitive development, students must be able to incorporate information into their own schemes. To do this, they must act on the information in some way.**
- **This active experience, even at the earliest school levels, should include both physical manipulation of objects and mental manipulation of ideas.**
- **As a general rule, students should act, manipulate, observe, and then talk or write about what they have experienced.**
- **Concrete experiences provide the raw materials for thinking.**
- **Communicating with others makes students use, test, and sometimes change their thinking abilities.**

Implications of Vygotsky's Theory for Teachers

- **Assisted learning or guided participation in the classroom, giving information, prompts, reminders, and encouragement at the right time and in the right amounts, and then gradually allowing the students to do more & more on their own.**
- **Teachers can assist learning by adapting materials or problems to students'current levels, demonstrating skills or thought processes through the steps of a complicated problems, doing part of the problems, giving detailed feedback an allowing revisions, or asking questions that refocus students'attention.**

Perbedaan Teori Piaget - Vygotsky

TOPIK	PIAGET	VYGOTSKY
Konteks Sosiokultural	Sosiokultur tidak urgen	Sosiokultur sangat urgen
Konstruktivisme	Konstruktifis Kognitif	Konstruktif Sosial
Tahapan	Terjadi Tahapan perkembangan kognitif	Tidak ada tahapan perkembangan kognitif
Proses Utama	Skema, adaptasi: asimiliasi, akomodasi, konservasi, klasifikasi, hipotesis-deduktif.	Zone of proximal development, bahasa, dialog, alat dari kultur
Peran Bahasa	Kognisi mengatur bahasa	Bahasa mengatur kognisi
Pandangan ttg Pendidikan	Pendidikan hanya perbaiki kognitif yg sudah muncul	Pendidikan berperan kuat mengembangkan kognisi
Implikasi Pengajaran	Guru sbg Fasilitator: memberi dukungan mengeksplorasi dunia dan menemukan pengetahuan sendiri.	Guru sbg Fasilitator: memberi kesempatan belajar bersama guru, teman, dan lingkungan.

Differences Piaget's and Vygotsky's Theory

Aspects	Piaget	Vygotsky
Development significance	Represents an inability to take the perspective of another and engage in reciprocal communication	Represents externalized thought: its function is to communicate with the self for the purpose of self guidance and self-direction
Course of development	Declines with age	Increases at younger ages and then gradually loses its audible quality to become internal verbal thought
Relationship to social speech	Negative: least socially and cognitively mature children use more egocentric	Positive: private speech development out of social interaction with others
Relationship to environmental contexts	-	Increases with task difficulty: private speech serves a helpful self-guiding function in situations where more cognitive effort is needed to reach a solution.

CREATING LEARNING ENVIRONMENTS

Reference:
Wolfook. Educational Psychology

The Need for Organization

- Classrooms are by nature multidimensional, full of simultaneous activities, fast paced, unpredictable, public, affected by the history of students' and teachers actions.
- A teachers must juggle all these elements every day.
- Productive classroom activity requires students' cooperation. Maintaining cooperation is different for each age group.
- Young students are learning how to "go to school" and need to learn the general procedures of school.
- Older students need to learn the specifics required for working in different subjects.
- Working with adolescents requires teachers to understand the power of the adolescent peer group

The Goal of Effective Classroom Management

The goals of effective classroom management are to make ample time for learning: improve the quality of time use by keeping students actively engaged, make sure participation structures are clear, straightforward and consistently signaled and encourage student self management, self control, and responsibility.

Rules and Procedures:

- Rules of the clasroom life usually are written or posted. Procedures cover administrative tasks, students, movement, housekeeping, and routine for accomplishing lessons, interactions between students - teachers, interactions among students.
- Rules can be written in terms of rights and students may benefit from participating in establishing these rules.
- Consequences should be established for following and breaking the rules and procedures so that the teacher and the students know what will happen.

Rules for Elementary School

(Evertson & Emmer, 2000)

- Respect and polite to all people. For ex: waiting your turn, saying “please”, and “thank you”, and not calling names. This applies to adults,teachers peers.
- Be prompt and prepared
- Listen quietly while others are speaking. This applies to the teacher and other students, in both large-class lessons and small-group discussions.
- Obey all school rules

Rules for Secondary School

(Evertson & Emmer, 2000)

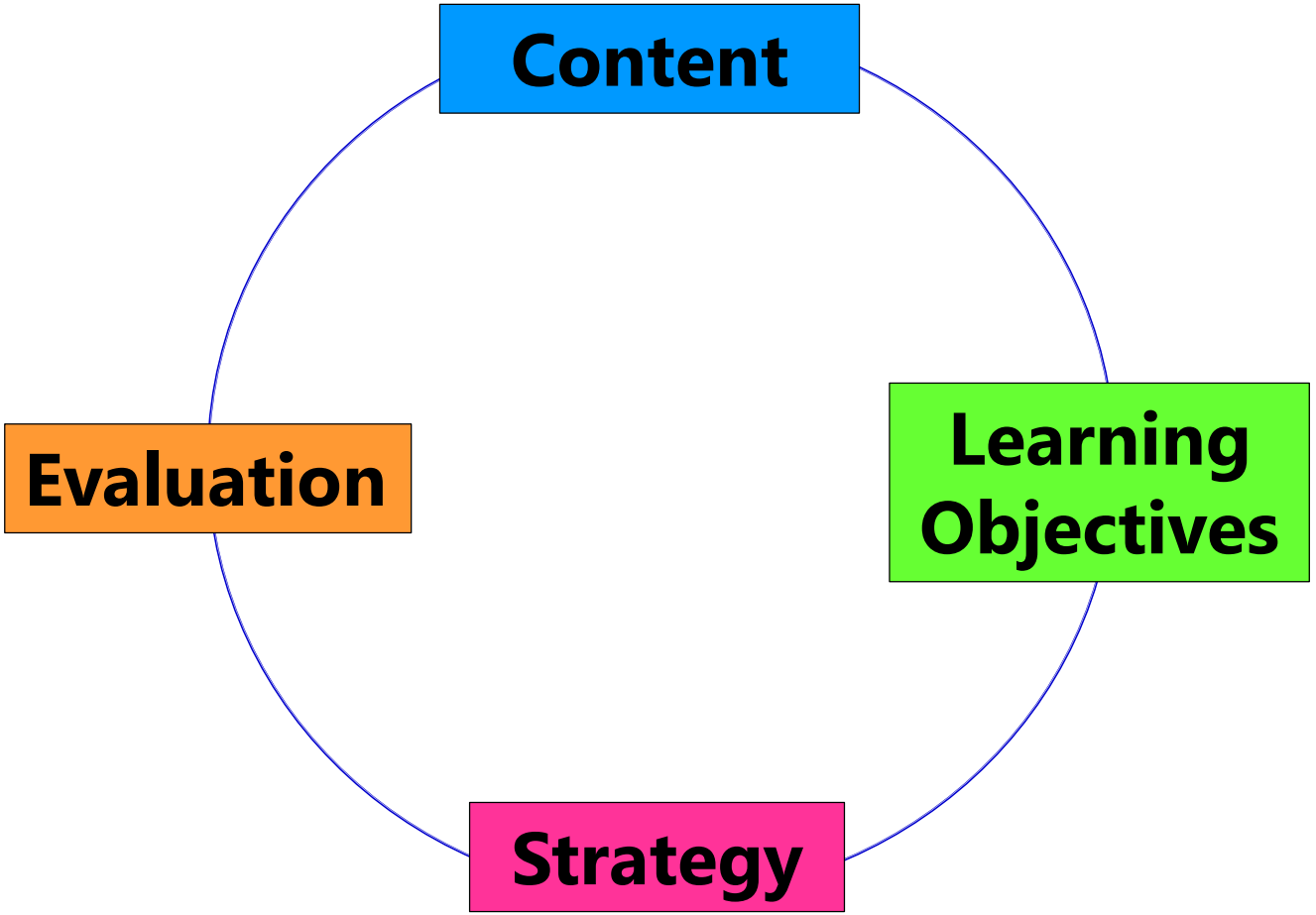
- Bring all needed materials to class. The teacher must specify the type of pen, paper, notebook, texts, etc.
- Be in your seat, ready to work when the bell rings
- Respect and be polite to all people
- Listen and stay seated while someone is speaking
- Respect other people's property: belonging to the school, the teachers, or other students.
- Obey all school rules.

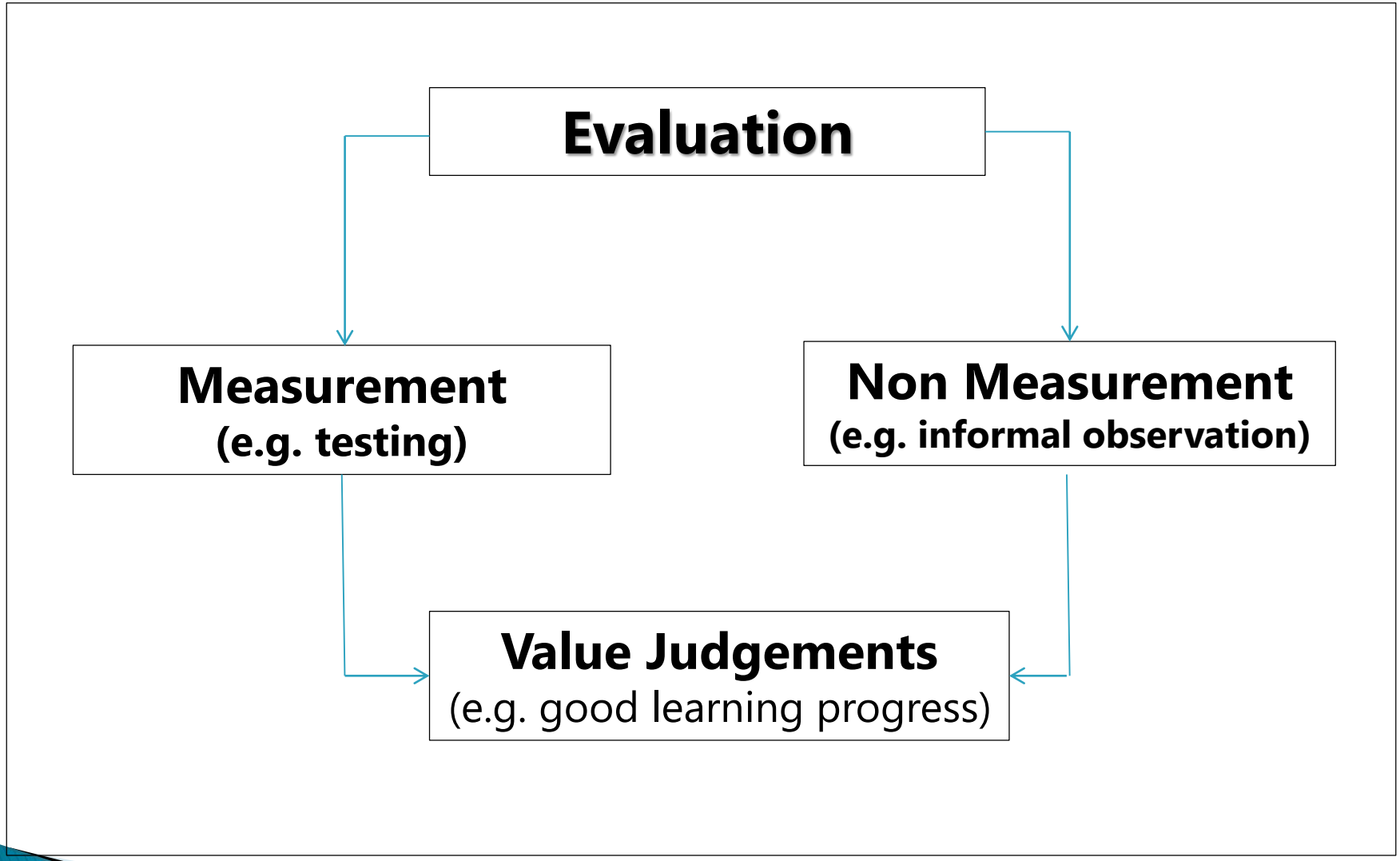
Creating a Positive Learning Environment

- To create a positive environment and prevent problems, teachers must take individual differences into account, maintain student motivation, and reinforce positive behavior.
- Teachers can prevent problems by establishing a caring classroom community and teaching students to use social skills & emotional self regulation skills.
- Students know that their teachers care about them when teachers try to make classes interesting are fair and honest with them, make sure they understand the materials, and have ways to cope with students'concerns and troubles.

EVALUATION,MEASUREMENT, ASSESSMENT, TEST

Learning Cycles




Evaluation
Measurement
(e.g. testing)
Non Measurement
(e.g. informal observation)
Value Judgements
(e.g. good learning progress)

Characteristics of a Fair Test: H B O

HONESTY:

- Content taught = content tested
- Difficulty matches level of the student
- No trick questions or misleading ones
- Point values (marks) are specified

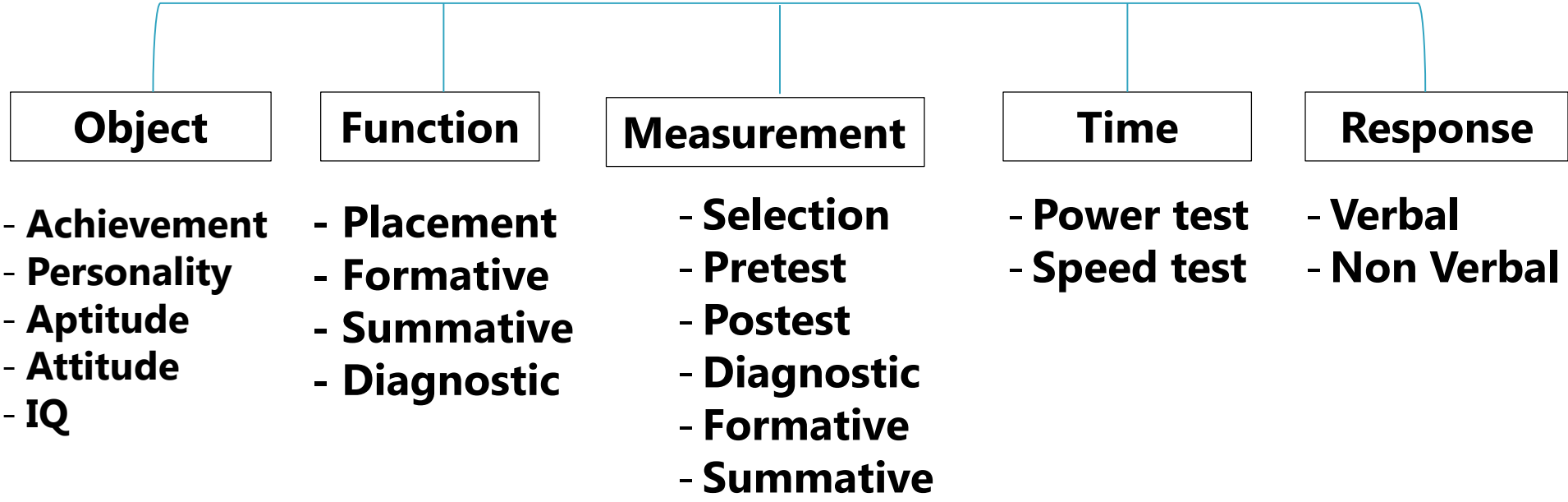
BALANCE:

- Time spent on teaching = weight or importance on the test
- Time to complete factors
- Range of difficulty: easy to hard
- Range of cognitive level: low to high
- Variety of question types

ORGANIZATION

- Clear directions and instructions
- Order (sequence) taught = order on the test
- Layout-clear, good spacing, margins.
- Professional appearance

T E S T


Object
- Achievement
- Personality
- Aptitude
- Attitude
- IQ
Function
- Placement
- Formative
- Summative
- Diagnostic
Measurement
- Selection
- Pretest
- Postest
- Diagnostic
- Formative
- Summative
Time
- Power test
- Speed test
Response
- Verbal
- Non Verbal

TYPES OF ASSIGNMENTS &TESTS

- Abstract
- Advertisement
- Annotated bibliography
- Briefing paper or working paper
- Brochure, poster
- Estimate budgeting with rationale
- Case analysis
- Chart/flowchart, graph, table, visual aid
- Client report for agency
- Cognitive map, web, diagram
- Contemplatif essay
- Court brief

- Debate
- Definition
- Description of a process
- Dialogue
- Diary of a fictional or real historical character
- Essay exam
- Executive summary
- Fill in the blank test
- Group discussion
- Search
- Instructional manual
- Introduction
- Inventory

- Laboratory of field notes
- Letter to the editor
- Matching test
- Multiple choice test
- True or false test
- Materials and methods plan
- Mathematical problem
- Memo
- Micro theme (coherent essay typed on note card)
- Multimedia or slide presentation
- Narrative
- News or feature store

- Notes on reading
- Nursing care plan
- Oral report
- Outine
- Personal letter
- Plan for conducting a project
- Poem, game, role play
- Question
- Regulations, law, rules
- Conversation
- Puzzle
- Research proposal and addressed to agency

- Review of book, exhibit
- Chapter or book report
- Review literature
- Freewrite
- A thesis statement, outline, list ideas for dev
- Case study
- Study of document
- Rethorica
- Statement of assumption
- Summary or precis
- Conference

- Taxonomy or set of categories
- Term paper, research paper
- Technical or scientific report
- Thesis sentences (that expresses author's main point)
- Word problem, problem solving
- Work of art, music, architecture, sculpture
- Studytour
- Finding main ideas or good information
- Speed reading
- Sharing ideas
- Diction
- Writing thesis or disertation

- Comprehension on the text and report of result
- Draw conclusions
- Identify the main idea or theme
- Show or demonstrate
- Listening test or retell
- Compare with others
- Evaluate toward positiveness/negativeness
- Teamwork
- Guidline, timeline, time schedule
- Action plan
- Presentation
- Reading with guided and writing main ideas

Classroom Assessment Procedures

Clasification	Types of Assessment	Function of the Assessment	Illustrative Instruments
Nature of Assessment	Maximum Performance	Determines what individuals 'can do' when performing at their best	Aptitude test, achievement test
	Typical Performance	Determines what individuals 'will do' under natural conditions	Aptitude, interest, personality inventories, observation, peer test
Use in Classroom	Placement	Determines prerequisite skills, degree of mastery of course goals, best mode of learning	Readiness tests, aptitide test, pretest, self report inventories, observation
	Formative	Determines learning progress, feedback, correct learning errors	Teacher-made tests, custom-made tests from textbook, observ
	Diagnostic	Determines causes of persistent learning difficulties	Diagnostic tests, teacher-made diagnost observation.

Clasification	Types of Assessment	Function of the Assessment	Illustrative Instruments
	Summative	Determines end-of course achievement for assigning grades or certifying mastery of objectives	Teacher-made survey tests, performance rating scales, product scales
Form of Assessment	Fixed Choise Test	Efficient measurement of knowledge and skills, indirects indicator	Standarized multiple-choise test
	Complex Performance	Measurement of performance in context or problems valued in their own right	Hands -on laboratory experiment, projects, essays, oral presentations
Method of Interpreting Result	Criterion Referenced	Desribes students performance according to a specified domain of clearly defined learning tasks	Teacher-made tests, custom-made tests from textbook, observational technique
	Norm Referenced	Decribes students performance according to relative position in group	Standarized aptitude and achievement tests, teacher-made survey test

BLOOM'S TAXONOMY

For Less to more complex

COGNITIVE	AFFECTIVE	PSYCHOMOTOR
➢ Knowledge ➢ Comprehension ➢ Application ➢ Analysis ➢ Syntesis ➢ Evaluation	❖ Receiving ❖ Responding ❖ Valuing ❖ Organizing ❖ Characterizing	❑ Perception ❑ Set ❑ Guided response ❑ Mechanism ❑ Complex response ❑ Adaptation ❑ Origination

INCREASING COGNITIVE COMPLEXITY

1. KNOWLEDGE:

- What …
- Where …
- When…
- Who…
- Define, set, establish, affirm, explain, ilustrtate…
- Decribe, talk about, create, build, produce, imagine, visualize,…
- Outline, schema, table, chart, sketch, draft…
- State, say, tell, claim, speak, clarify, assert, explain, declare, formulate, release, elaborate, confirm, write out, inform, announce, emphasize, underline …
- List, recap …

2. COMPREHENSION

- Why…
- How…
- State in your own words…
- Condense, summarize…
- Show of demonstrate…
- Pharaprashe (in your words)…
- Re-tell…
- Interpret…

3. APPLICATION

- Apply, use, adjust..
- What would happen if ..
- What elements or statemens best illustrate..
- Explain how, clear up, confirm, understand...
- Would react to …
- Illustrate, clarify…
- Prove, verify, testify…
- Demonstrate, show,exhibit, present, …

4. ANALYSIS

- What motive (s)…
- What relationship exists…
- Identify the main idea or theme…
- Analyze, detail, …
- Distinguish, differentiate, separate, argue, recognize, mark-off, focus, contast …
- Examine, check, test, verify, inspect, explore, investigate, interrogate…

5. SYNTHESIS

- Propose an alternative…
- Devise, design,plan,schedule, discover, find, reflect, think, consider, spaculate, contemplate,
- How else would you…
- Construct, build up, develop, arrange, create, produce …
- Compare, contrast, confront, connect, counter, comparison,, …
- Show relationship…

6. EVALUATION

- Draw conclusions,reslut, ending, finale,critiques, review, finding, consequence.
- What errors…
- What inconsistencies…
- Defend, protect, struggle, stand up, …
- Judge,consider, …
- Evaluate, assess,estimate …
- Compare,contrast, confront, connect, …