Psychology In Relation To Medicine

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Defintion of psychology:

The study of the mind and mental processes, especially in relation to behavior

Psychology has a direct relation to medicine in five areas:

1- Behavioral manifestation of medical illness:

a. Some general medical conditions are presented with changes in behavior.

examples:

. In diseases of the brain, changes in behavior arise from damage to localized brain regions.

. Intake of some medical drugs may be presented with psychiatric symptoms

2- Human behavior has a role in the etiology of medical problems:

Many physical illnesses arise from what people do to themselves. Human behavior such as smoking and reckless driving can result in serious and often fatal medical problems. (e.g., cancer lung, car accidents) There are also ranges of disorders, which are referred to as "stress - induced" illnesses. (Psychosomatic disorder) e.g. bronchial asthma, peptic ulcer etc.

3- **Understanding doctor - patient relations**:

The relation between the doctor and the patient lies at the heart of all medicine. The quality of communication between doctor and patient can determine not only what problems are discussed, but also the degree to which patients adhere to treatment. The patient responds emotionally both to illness and treatment

4- Patient's response and coping to illness and treatment:

Serious medical illnesses require psychological and social adjustment. The psychological aspects play an important role in determining adaptation to treatment and subsequent speed of recovery.

5- Psychological approaches in treatment of physical illness:

Behavioral medicine is concerned with the application of psychological approaches for treatment of physical disorders. Such methods as talk, relaxation, emotional expression and direct behavior medication are used to treat headache and pain.

It is also important to note that the incidence of some problems, such as respiratory and cardiovascular diseases could be affected by changing behavior such as stopping smoking, exercise and healthy diet.

Coping with physical Illness

The physical illness can be perceived as a stressful event.

1- Problem-focused or direct coping behaviors involve attempts to deal directly with the situation in order to make it more manageable or tolerable.

2- Emotion focused or palliative coping is more concerned with managing the emotions generated by the illness.

I- Coping with chronic illness:

The effects of the illness on individuals will depend very much on how they cope.

a. Denial:

Many patients appear to show a degree of denial soon after receiving the diagnosis of a major chronic illness, such as cancer. In many ways this response may be adaptive both in protecting patients from all the implications of having that illness and, in allowing them time to adapt.

b. Direct coping:

After the initial reaction, both direct and indirect coping may be seen in chronically ill patients. Patients who cope directly seek out and assimilate information about their condition, the treatment and the likely outcomes in addition they are motivated and active in adhering to treatment ad make all sorts of other adjustments in their lives to deal with the illness and related problems in a positive way.

c. Indirect coping:

Indirect coping consists of attempts to minimize the psychological impact of the illness by such strategies as denial or distraction.

Social factors generally, and social support in particular have been identified as having a very important influence on the way individuals cope with a chronic illness. Support from small group meetings with patients with a similar condition can also be valuable as a form for sharing worries and for learning information and new coping strategies (Group therapy).

There are often major problems experienced by families in caring for a member with a chronic disease. Thus, it is important for the family to be involved in the clinical management and to be adequately informed and prepared for dealing with the long-term demands which chronic illness often imposes (Family therapy).

II- Coping with terminal illness:

1. Communicating with dying patients:

Most people do want to know the truth about their condition and that they cope better when communication has been open and honest. Similarly, openness in communication with close relatives also seems to be associated with a better outcome. However, there are important individual and ethnic differences and it is clear that communication should be guided by and tailored to the needs of individual patients.

2. Psychological responses of dying patients:

The reactions of dying patients to their impending death show wide variations depending on their situation, their personality and their degree of expectation or preparation for the 'bad news'. Some patients, who may have spent months of uncertainly, actually report feelings of relief when given their diagnosis. In contrast others may be shocked or numbed.

There are distinct phases of adjustment in dying patients. Patients will initially respond with denial and than a stage characterized by range and anger. This in turn, gives way to a bargaining phase and then a phase of depression before the reality of the terminal condition is finally accepted. Dying patients have major fears about many issues including pain, loneliness and the unknown as well as fears associated with their own clinical condition.

Psychosocial Aspects of Hospitalization

The psychosocial disruption and limitations encountered in hospital life can produce a range of psychological responses, some of which can be severe enough to want psychiatric help. Lengthy stays in hospital may result in withdrawal, inertia and an inability to cope with life outside. Moreover, there are particular psychological problems associated with the hospitalization of younger children, where this involves separation from the home.

Psychological Reponses to Specific Treatment

Some treatments are also very restricting and have been found to cause emotional and behavioral changes. In particular a number of studies have been made on patients kept in intensive care units (ICU) , those maintained by hemodialysis.

Patients undergoing such treatments are doubly stressed in they are likely to show a psychological reaction to the severity of their illness as well as to the restriction imposed by the treatment. One of

the most striking earlier observations was of poliomyelitis patients receiving artificial respiration in a tank respirator. Many of these patients were found to have quite marked psychological reactions,

which included acute confessional states and hallucinations due to the sensory deprivation of the tank respirator.

Psychological interventions for stressful medical procedures

Since studies have shown a relation between patients' psychological state and their recovery, it has been recognized that there could be considerable gains from providing a psychological intervention designed to reduce or minimize the psychological impact of a medical procedure.
Five main groups:

i- Psychological support:

The doctor, nurse or psychologist typically allows the patient to talk about particular worries and then attempts to provide support and reassurance.

ii. Information provision:

Information about the likely sensations, including pain-, that the patient might expect to feel (sensory information) and information as to what will happen during the procedure (procedural information).

iii. Skills training interventions:

They have included training in breathing and in other aspects of bodily control, which are usually related to a particular investigative procedure. These have been found to be quite beneficial in helping patients cope with a medical procedure and in facilitating postoperative recovery.

A more general skills training procedure which has been found to be useful in recovery is (relaxation training) which has proved beneficial in reducing anxiety prior to different treatments and investigations.

iv. Modeling:

These procedures consist of allowing patients to see on film orvideotape, other patients undergoing a similar investigative procedure,treatment or surgery.

v. Cognitive-behavioral interventions:

These are aimed at modifying or facilitating the way of patients
and coping with the procedure they are about to undergo.

In summary, there is now considerable evidence to indicate that different types of psychological preparation can not only reduce the anxiety, stress and pain involved in many medical procedures but also that there are considerable related benefits (e.g. less analgesia, better recovery, faster discharge, etc).

Doctor-Patient Relationship

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Since medical diagnoses and treatment decisions are made based on information arising from the medical interview alone, good doctor patient communication has been described as the cornerstone of good medical practice

Models of the Doctor-patient Relationship

There are a number of potential models of the doctor-patient relationship.

1 - The active-passive model:

In this model the patient assumes virtually no responsibility for his/her own care and takes no part in treatment. This model is appropriate when a patient is unconscious, immobilized or delirious.

2- The teacher-student model:

The role of the patient is essentially one of dependence and acceptance. This model is often observed during a patient's recovery from surgery.

3- The mutual participation model:

It implies equality between doctor and patient; both participants require and depend on each others input. This model is useful in chronic illnesses as renal failure and diabetes.

4- The friendship model:

It is generally considered dysfunctional if not unethical. It often involves indeterminate perpetuation of the relationship rather than an appropriate ending, and a blurring of boundaries between professionalism and intimacy.

Importance of effective doctor-patient communication

1. Accurate diagnosis.
2. Enhancing patient compliance to treatment plans.
3. Contributing to doctor clinical competence and self assurance.
4. Contributing to patient satisfaction.
5. Contributing to cost and resource effectiveness by preventing unnecessary prescriptions for medication that are either wrongly prescribed or not properly used by patients.
6. Giving rise to institutional gains:

a. Enhancing multidisciplinary team formation.
b. Changing the structure of the medical school curricula.
c. Introducing of learner-centered teaching methods.
d. Improvement in medical school staff performance.
e. New research possibilities.
f. Introducing other areas of training like counseling skills and behavior change methods.

Communication skills

The clinical competence of doctors is often judged in terms of communication skills (even though communication skills are not usually taught as a formal part of medical training).

Medical students need to acquire:

A) Core communication skills:

1. Doctor-patient interpersonal skills.
2. Information gathering skills.
3. Information giving skills.

B) Advanced communication skills:

1. Skills for motivating patient adherence to treatment plans.
2. Skills for specific situations.

A) Core communication skills:

1- Doctor-patient interpersonal skills:

The following skills are needed:-

- Creating an appropriate physical environment.
- Greeting others.
- Empathy.
- Showing respect and interest.
- Showing warmth and support.
- Using appropriate language.
- Developing a collaborative relationship.
- Closing the interview.

2- Information gathering skills:
a) Using an appropriate balance of open to closed questions:
* Open question:
- To achieve information.
- To allow patients the freedom of response.
- To establish an atmosphere of two-way communication.
- To assess the type and level of patient vocabulary.

*Closed questions:
- To achieve specific information.
- To allow a limited choice of response.

b) Silence:
- To allow time for the patient to collect his thoughts.
- To assess levels of anxiety.

c) Clarifying patient expectation about the consultation by tactics of clarification:
*Re-statement:
- To clarify the meaning and accuracy of old information.
- To demonstrate our understanding of what we have heard.
- To validate what has been said.

*Reflection of content

- To explore new information
- To help patient develop and evaluate his thoughts

d) Clarifying the information given to the patient.

e) Active listening: To show that the therapist is attending closely the patient.

f) Sequencing of events.

g) Directing the flow of information.

h) Summarizing.

3. Information giving skills:

They include:

- Providing clear and simple information.
- Using specific advice with concrete examples.
- Pushing important things first.
- Using repetition (restatement).
- Summarizing.
- Categorizing information to reduce complexity and aid recall.
- Using tools such as diagrams, written instruction and technical aids to explain the information being given.
- Checking patient understanding of what has been said.
- Asking patients to repeat back what they had heard and understood.

B) Advanced Communication Skills:

1. Skills for motivating patient adherence to treatment plans:

- Tailoring the treatment to suit the patients lifestyle.
- Providing a rationale for behavior change.
- Countering barriers to change.
- Providing examples of role models.
- Allowing opportunities for verbal rehearsal of the details of the treatment regimen.
- Feedback (positive reinforcement of constructive behavior
- changes already achieved since earlier consultations).

2- Other applications of communication skills in special situations:

a) Special groups of population:

- With language differences.
- With families or couples.

b) Special groups of disorders:

e.g.

- Disabled (blind, deaf, paraplegic, etc.).
- Mentally retarded.
- Chronically ill.
- Terminally ill.
- Depressive and / or suicidal patients.
- Chronic pain.
- Problems of addiction.
- AIDS.

c) Special personality problems:

- Non cooperative patients.
- Hostile patients.
- Over dependent patients.
- Inhibited patients.
- Over defensive patients.

d) Special clinical situations:

- Giving bad news.
- Dealing with sensitive issues (e.g. sexual).
- The very short contact.
- Telephone contact.
- Lack of space and lack of privacy.
- Preparation for threatening diagnostic and /or treatment. procedures.
- When speaking to others (e.g. relatives about a patient).

Transference and counter-transference:

Transference refers to the unconscious attitude of a patient toward his doctor. It results from displacement of feelings and attitudes from important relationship in the patients past to thephysician. The patient may regard his doctor as a parental figure, a teacher, a rescuer (positive transference) or may develop resentment or anger toward him if his expectations are not realized (negative transference).

Counter transference refers to the unconscious attitudes of a physician towards his patient. The patient may remind the doctor of a close relative or friend. Like transference, it may be positive or negative.

Compliance:

It is the extent to which a patient follows the clinical instructions of the physician.

Examples of compliance include:

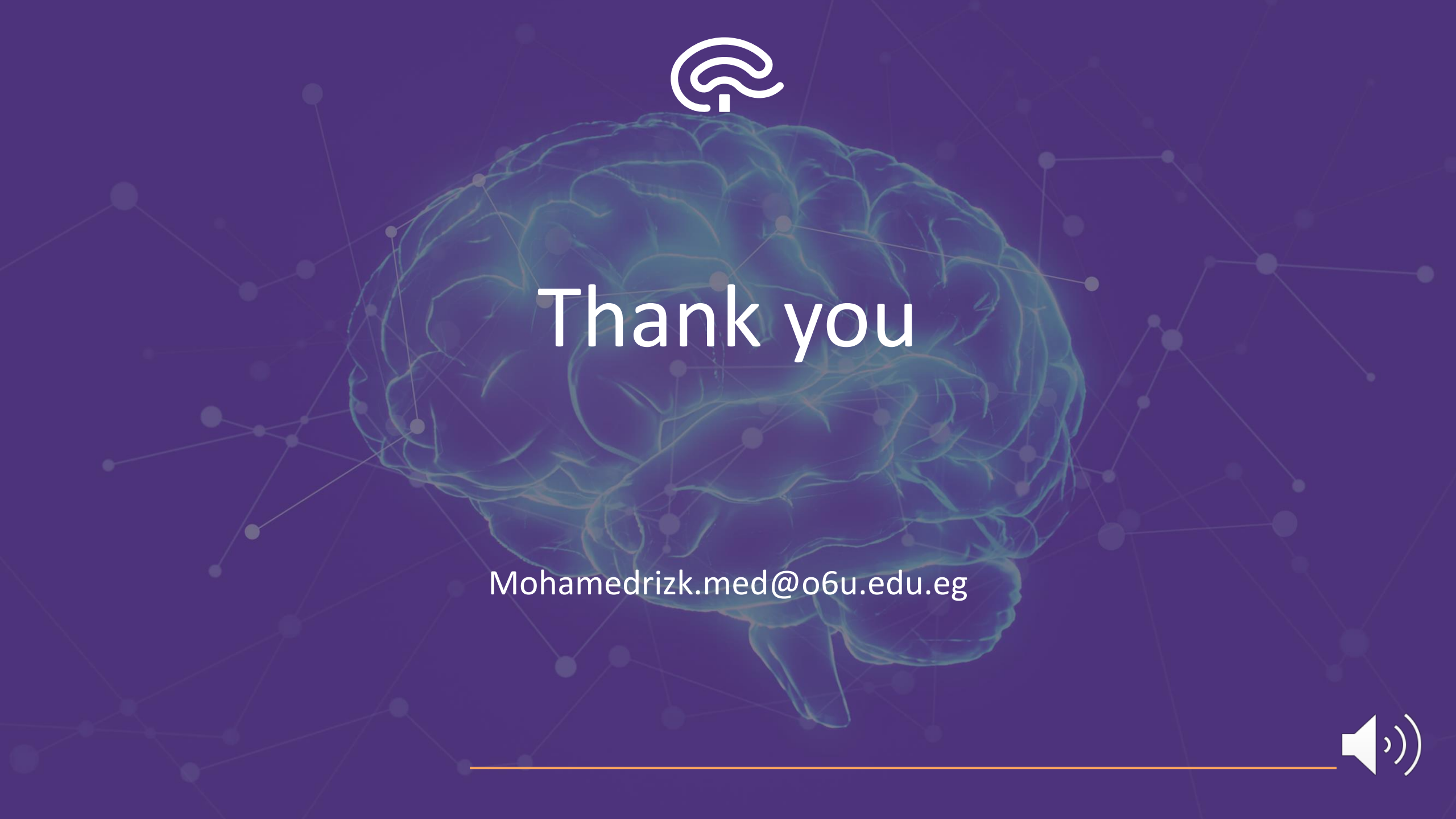
- Taking medications on schedule.
- Keeping appointments.
- Following directions for changes in behavior or diet.
- Approximately 1/3 of patients are compliant with treatment.
- 1/3 complies some of the time; and 1/3 don't comply with treatment at all.

Factors associated with decreased patient's compliance with medical advice

1. Perception of the physician as rejecting and unfriendly.
2. Physician failure to explain the diagnosis or causes of symptoms.
3. Increased complexity of treatment regimen i.e. more than three types of medication taken more than four times a day.
4. Increased number of required behavioral changes.
5. Verbal instructions for taking medication.
6. Visual problems reading prescription labels (particularly in the elderly)

Factors associated with increased patient's compliance with medical advice:

1. Good doctor-patient relationship.
2. Written instructions for taking medication.
3. Patient's subjective feelings of distress or illness.
4. Doctor's awareness of and sensitivity to the patient's belief system.
5. Physician enthusiasm, permissiveness, time spent talking with thepatient.
6. Physician experience and older physician age.
7. Short waiting room time.
8. Patient knowledge of the expected positive treatment outcome.
9. Patient knowledge of the names and effects of prescribed drugs.



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INTELLIGENCE

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Defining intelligence

Intelligence is the general ability to solve intellectual problems on the basis of past learning and present grasp of essentials. It is a mental activity directed towards purposive adaptation with the environment.

Standard age scores:

Standard age scores:

It is a score on an intelligence test by which one's performanceis compared to that of others of the same age

Intelligence

$$\text{Intelligence Quotient (IQ)} = 100 \times \frac{\text{Mental age (score obtained by the test)}}{\text{Chronological age (actual age)}}$$

If mental age is near to chronological age = average IQ.
If mental age is greater than chronological age = superior IQ.
If chronological age is greater than mental age = subnormality.

Classification of intelligence IQ by age:

Borderline	70-79
Dull normal	80-90
Normal	90-110
Bright normal	110-120
Superior	120-130
Very superior	130

Growth of intelligence:

Intelligence grows steadily and progressively to the age of (13- 15y) then more slowly to (16-18y) after which no further increase occurs.

Constancy of intelligence:

Intelligence is constant over years.

Intelligence test:

Examples of Intelligence tests:

- Binet test.
- Wechsler test.
- Progressive matrices test.

IQ is constant, if an exception occurs, this may be due to

1- Use of different tests.
2- Different people with different experience scoring the same test.
3- Previous acquaintance with the test.
4- Emotional difficulties, e.g. anxiety.
5- State of health.
6- Degree of interest in being tested.
7- Cases with organic brain syndrome or psychoses.

Criteria for a good test

1- Reliability: refers to the extent to which a test provides consistent findings.

2- Validity: it is the extent to which a test measures what it is supposed to be measuring.

3- Norms: are the results of a test taken by a large group of subjects whose scores can be used to make comparisons.

Uses of intelligence tests

1- Educational purposes: to classify students according to their IQ.
2- Vocational guidance to select employees.
3- Measure the level of intellectual deterioration in organic brain syndrome.
4- To find social and intellectual harmony between husbands and wives.

Composition of intelligence

1- Verbal comprehension i.e., ability to understand words.
2- Word fluency i.e., ability to think of words rapidly
3- Arithmetic abilities.
4- Ability to understand spatial relationship.
5- Ability to memorize and recall.
6- Perceptual ability i.e., ability to group similarities, differences and details of objects.
7- Reasoning i.e., ability to understand principles for problem solving.
8- Good judgment.

Factors affecting intelligence

I- Heredity and environment:

Both heredity and the environment are critically important in determining intelligence. Without a nurturing, stimulating environment, even the best of inherited potential may be wasted.

II- Gender:

When we look beyond the global measure that IQ scores afford, there do seem to be some reliable indications of sex differences on specific intellectual skills. Females score higher than males on tests of speed and accuracy, verbal fluency, reading and language ability.

Males, on the other hand, outscore females on tests of mathematical reasoning and spatial relations.

III- Age:

The measured IQs of individuals much younger than 7 do not correlate very well with later IQ scores. We cannot put too much weight to IQs earned by 4-year-olds as predictors of adult intellectual ability (see constancy of age abilities)

IV- Race:

No race differentiation was found. White people used to score approximately 15 points higher on tests of general intelligence than do black people due to the following reasons:

1- The tests themselves are biased, and unfair.

2- Environmental factors, such as available economic and/or educational opportunities, health and nutrition

V- Residence:

(No difference between urban and rural areas) as long as they are given the same chance in education and other environmental factors

Mental retardation:

A condition indicated by an IQ below 70 that began during the developmental period and is associated with impairment in adaptive functioning.

Further categories of mental retardation are as follows:

- IQ 70 - 85: borderline or slow.
- IQ 50 - 69: mildly mentally retarded.
- IQ 35 - 49: moderately mentally retarded.
- IQ 20 - 34: severely mentally retarded.
- IQ less than 19: profoundly mentally retarded

Causes:

1. Being born prematurely, where prematurely is defined as being born at least 3 weeks before the due date or at a weight below 5 pounds, 8 pounces.
2. The health of the mother during pregnancy can affect the health of her child hypertension, exposure to X rays, lowered oxygen intake rubella, maternal syphilis, or if the mother is a smoker or uses certain drugs which cross the placenta and have teratogenic effects on the fetus.
3. Difficulties or injuries during the birth process itself.
4. Genetic causes as Down's syndrome.

Thinking

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Definition:

Mental activity of problem solving

Anatomical sites concerned with thinking:

Cerebral cortex, limbic system, and reticular activating system

Tools of Thinking:

1. Signals. 2. Symbols.
3. Theories and laws. 4. Images.
5. Language. 6. Concepts

A Concept

A Concept is mental event used to represent a category or class of events or objects. It represents categories, classes, or groups of things, not just single individual cases.
It is ideas referred to objects or events formed by noticing similarities and differences among items. So, it represents the common properties of a group of different objects

Phases of Concept formation:

1- Generalization:

ability to discover differences between familiar and unfamiliar objects.

2- Differentiation:

Making distinction between different items.

3- Abstraction:

Considering common characteristics referred to a group of objects. It is the ability to grasp the essentials of a whole, to break the whole into its parts, and to discern common properties. We can test the ability of abstraction in a patient by giving him proverbs.

Types of thinking:

1- Purposive thinking:

- It is a realistic goal directed thinking which needs attention and lead to exhaustion.
- It is an active process for problem solving.

2- Autistic imaginative thinking:

- It is unrealistic, uncontrolled thinking.
- Not goal directed and do not lead to exhaustion.
- Does not need attention.

Forms:

- Imaginative play in children
- Daydreams.

If moderate it may be beneficial because it is a way of gratifying desires and wishes.

If excessive it may lead to withdrawal from reality and isolation.

3- Controlled imaginative thinking:

- It is a creative type of thinking.
- Controlled and goal directed.
- It passes through these phases.

a- Preparation:

Collection of data for the study problems

b- Incubation:

A period of unconscious thinking.

c- Inspiration:

Finding a solution.

d- Verification:

To test the solution

This type of thinking is essential for invention of new ideas.

4- Concrete and abstract thinking:

Concrete thinking: is a form of thinking characterized by very simple understanding of presented factors with inability to understand the meaning behind a word or a statement.

Abstract thinking: is a form of thinking characterized by the ability to understand, grasp essentials and the hidden meaning behind a word or a statement.

5- Logical and illogical thinking:

- Logical thinking is the using of relevant data to reach a certain and acceptable solution.
- Illogical thinking is the using of irrelevant data to reach an uncertain and unacceptable conclusion

Problem Solving

Definition:

It is an active process to resolve a problem. It is a type of purposive thinking and one of the highest cognitive processes

Steps of problems solving:

1- Initiation state: Recognition of the problem and definition of the goal.

2- State of information gathering: Gathering guiding ideas and information and finding the relevance of the gathered information to the problem.

3- Solving state:

- Using tools of thinking.
- Putting different alternative solution.
- Elimination of the nonessential information and the irrelevant solution.
- Revising previously similar solved problems.
- Using strategies for solving the problems.

Types of strategies:

Algorithms: Systematic exploring and evaluating all possible solution one by one until the correct one is found. It is time consuming but lead to a sure solution.

Heuristics: A more economical technique for generating possible solution to a problem by putting probabilities and testing them.

Reduction or patristic strategy: Division of the problem into small more manageable sub-problems.

Finding analogue: Recognizing the similarities between current problem and previous problems.

4- Evaluation state:

- Assessment of the results.
- Self criticism.
- We should be flexible and unbiased.

Barriers for effective problems solving:

1- Goal indefinite and ambiguous.
2- Knowledge insufficient and irrelevant.
3- Mental set:
- Distractibility or inattention.
- Lack of motivation and persistence.
- Failure to retrieve memory.
- Inability to control emotional factors.

4- Attitude: inflexibility and inability to find alternative solution.
5- Strategies used are incorrect.
6- Tools of thinking are insufficient or using unclear concepts

Disorders of thinking:

1- Disorders of the content of thinking:

a. Preoccupation with obsessions, fears, suicidal thoughts etc..

b. Overvalued ideas: extreme preoccupation with unreasonable idea which determine the entire subject's behaviour.

c. Delusion: false fixed belief based on incorrect inference about external reality, not amenable to discussion, not consistent with the patient's intelligence, education and cultural background

Types of delusions:

I- Delusions in schizophrenic patients:

Example:

- Bizarre delusions: strange false belief e.g. invaders from space have implanted electrodes in person's brain.
- Persecutory delusions: e.g. patient believes that he is being harassed or persecuted or cheated.
- Delusion of reference: e.g. patient believes that others refer to him.
- Delusion of infidelity: patient believes that his partner is unfaithful.

Chapter

II- Delusion in depressed patients:

Example:

- Delusion of nihilism: patient believes that part of or all his body does not exists.
- Delusion of hypochondriasis: patient believes that he has a serious illness in spite of reassurance.
- Somatic delusion: delusion concerning body functions.

III- Delusions in manic patients:

Example:

- Delusions of grandiosity: the patient believes that he is important and powerful.

2- Disorders of the control of thinking:

a. Thought reading: The patient's thoughts are being known by others.
b. Though insertion: The patient's thoughts are being implanted in the patient's mind.
c. Though broadcasting: The patient's thoughts are being broadcasted.
d. Though withdrawal: The patient's thoughts are being removed form the patients mind by an external force.

Disorders of the form of thinking:

a. Lack of association and incoherent thinking.

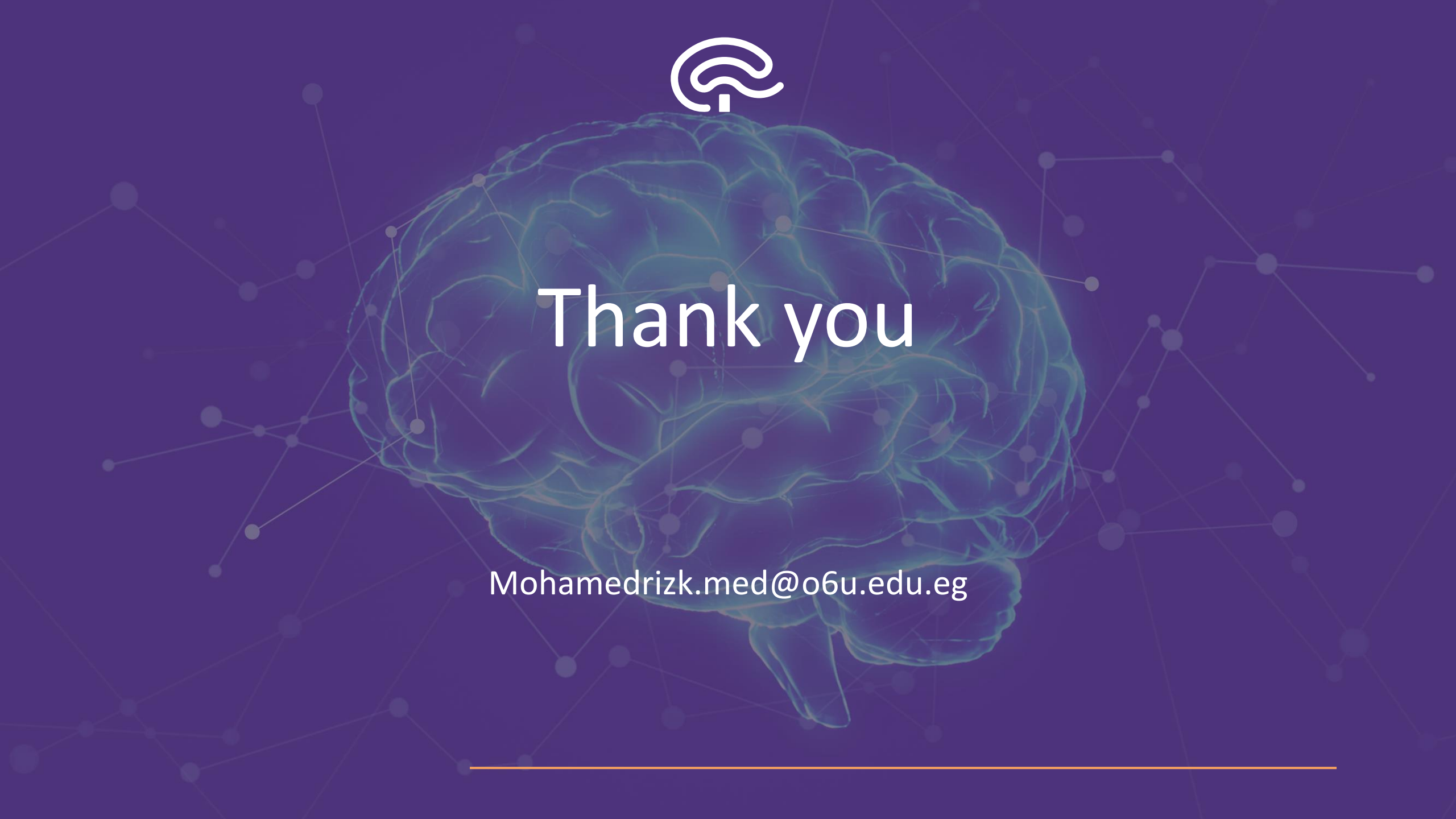
b. Poverty of the content of thinking and vagueness.

4- Disorders of the stream of thinking:

a. Fast thinking with flight in ideas as in mania.

b. Slow retarded thinking as in depression.

c. Thought block as in schizophrenia.



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MEMORY

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Defintion:

Memory is cognitive ability to encode, store and retrieve information.

Functions of memory:

- Encoding: is the active process or putting information into memory (learning).
- Storage: is the process of holding encoded information in memory until the time of retrieval.
- Retrieval: is the process of using the information, which is stored in memory.

Anatomical areas involved in memory

- Hippocampus. • Amygdala.
- Temporal lobe. • Medial frontal gyrus.
- Mammillary bodies.

Neurotransmitters involved in memory

- Acetyl choline. • Serotonin.
- Dopamine. • Nore-epinephrine.
- Some neuropeptides.

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Types and levels of memory:

A- Sensory memory:

- Hold large amounts of information.
- Registered at the sense receptors (auditory, visual etc ..).
- Very brief period (visual 1/2 second and auditory 3 seconds).
- It is based on electrical changes.

B- Short term memory (STM):

- Limited capacity.
- Limited duration (15-20 seconds).
- Limited storage.
- Encoding = we have to pay attention to the information processed.
- Forgetting occur by decay or displacement.
- Information in STM could pass to long term memory LTM by rehearsal or consolidation. It is based on chemical changes and reverberating circuits.

C- Long term memory:

- Unlimited capacity.
- Very long duration.
- Permanent but subjected to distortion or replacement.
- Information stored in organized fashion.

Types:

1-Procedural memory: Storage of the learned behavior and skills.

2. Episodic memory: Storage and record of our life events and experiences

3. Semantic memory: Storage of facts, knowledge and vocabularies.

4. Meta memory: Storage of principles, laws etc.....

Causes of forgetting:

1- Interference:

when previously learned material cannot be retrieved because it is inhibited or blocked by material or information learned later..

2. Repression: It is sometimes called motivated forgetting. It occurs when anxiety producing, or traumatic events are forced into the unconscious level of the mind (Repression is a concept introduced by Freud)

3- Failure of (encoding): See factors affecting learning.

4- Failure of registration: Consolidation and storage of the learned materials. This may be due to changes in molecular structures in the areas implicated such as hippocampus and limbic system. It may be

due to

- Lesion or disease in these areas.
- Being under the effect of narcotics.
- Head trauma
- Disease affect protein synthesis or neurotransmitters

5- Failure of retrieval: It depends on

- The subject's emotional and physical state.
- The subject's interest and psychological state.
- Being under the effect of drugs.

Disorders of Memory

A- Amnesia: Partial or total inability to recall past experience.

1. Psychogenic amnesias:

Anxiety amnesia: Anxiety tends to impair perception, concentration, understanding and consequently memory.

Depressed and anxious patients frequently complain of loss of memory.

2. Organic amnesias:

- Transient global amnesia occurred due transient ischemic cerebral attaches (TICA).
- Retrograde and anterograde amnesia:

  Retrograde amnesia: amnesia for events occurs before a point of him.

  Anterograde amnesia: amnesia for events occurs after a point of him.

They may occur in head injuries due to failure of encoding storage and registration of information at the time around trauma.

- Amnesia for recent events occurs early in dementia.
- Amnesia for recent and remote events in advanced cases of dementia.

B) Paramnesia:

- Retrospective falsification: Memories are modified to be consistent with morbid mood and beliefs. It occurs in depression and schizophrenia. Memory becomes unintendedly distorted by being affected by a person's mood thinking and cognitive state.

- Confabulations: Completely false descriptions of past fictitious events. It is unconscious feeling of gaps in memory by imagined or untrue experiences that people believes but have no basis in facts it is usually associated with organic pathology. They occur in organic brain syndrome.

C- Distortion of Recognition

- Illusion of familiarity (dèja vu): is a sense or feeling of having experienced the current novel situation before. It is illusion of visual recognition in which a new situation is in correctly regarded as a repetition of a previous memory.
- Illusion of unfamiliarity (Jamàis vu): is a sense or feeling of not experiences the situation. It is false feeling of unfamiliarity with a real situation that a person has experienced

To improve your memory the following guidelines are helpful

1. Retrieval: Tends to be best when the situation in which retrieval takes place, matches the situation that was present at encoding.

The way we retrieve information depends on the way this information was encoded. It was found also that if the individual's state of mind at retrieval is similar to what it was at the time of encoding, this will improve retrieval (State Dependent Memory).

2. Heightened: Emotionality at encoding generally creates memories that are easier to retrieve.

3.Meaningfulness: In general meaningful material (or material that can be made meaningful) is easier to retrieve than meaningless material.

4. Mnemonic devices (Encoding devices): These are strategies used at encoding in order to help organization of the learned material to be retrieved easier e.g. rhyming, chaining, mental images.

5. Over-learning: This involves the rehearsal of information (encoding) more than is needed for immediate recall. Within limits the more one over-learns, the greater the likelihood of accurate retrieval.

6. Schedules of Studying:

- Massed practice: study or rehearsal in which there is no break or rest in one's practice.
- Distributed practice: the individual uses shorter segments of rehearsal periods interrupted by rest intervals.

In almost all cases distributed practice leads to better retrieval than does massed practice.

Learning

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كلية الطب والجراحة

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Defintion:

Acquisition of new behavior that result from practice and past experience.

Learning helps us in mastering new skills and academic subjects. It is also involved in emotional development, social interactions and personality development. We learn what to fear, what to love, how to be polite,…

There are two approaches to learning:

I. The behavioral approach.

II. The cognitive approach.

I. The behavioral approach:

Learning is based on associations, Associative learning means that certain events go together.

In classical conditioning:

an organism learns that one-event follows another-for example a baby learns that the sight of a breast will be followed by the taste of milk.

In operant conditioning:

an organism learns that a response it makes will be followed by a particular consequence. For example, a young child learns that striking a sibling will be followed by disapproval from his parents.

Methods of learning:

1- Imitation: as in children.

2- Trial and error as in animals.

3- Insight learning: trial and error with planning a solution on a mental level.

4- Conditioning (classical and operant).

A- Classical conditioning (Pavlov):

Classical conditioning is a type of learning in which an originally natural stimulus comes to evoke a new response after having been paired (associated) with another stimulus that reflexively evokes the same response.

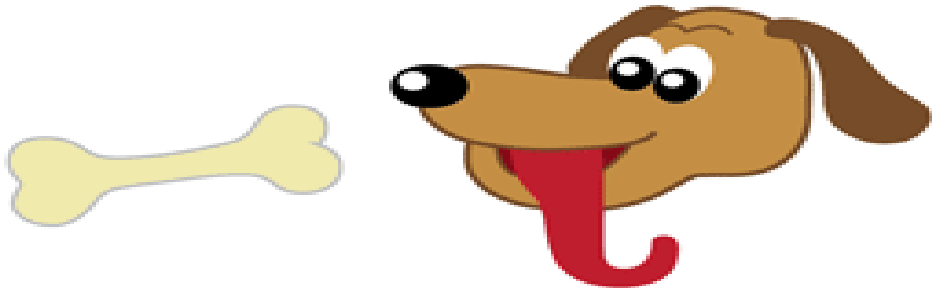
This form of learning was described by Pavlov. He noted that a dog salivates (unconditioned response; UR) at the sight of food (unconditioned stimulus; US). Repeated pairing of a ringing bell (conditioned stimulus, CS) with the sight of food results in learning,

the bell (CS) alone elicits salivation (conditioned response, CR).

Classical conditioning pairs a new stimulus with an existing response;

Before conditioning

FOOD (UCS) **SALIVATION (UCR)**



BELL **NO RESPONSE**

During conditioning

BELL + FOOD (UCS) **SALIVATION (UCR)**

After conditioning

BELL (CS) **SALIVATION (CR)**

stages in classical conditioning:

Stage 1 : is the pre-training phase. Food acts as a US and in its presence a dog salivates. US --- UR.

Stage 2 : is the training phase, in which the sound of the bell is paired on several occasions with the sight of food, yielding an unconditioned response. CS +US ----- UR.

Stage 3 : The mere sound of the bell, in the absence of food, elicits salivation. CS ---- CR.

Thus in classical conditioning, a natural or reflex behavior (salivation) is elicited in response to a learned stimulus (the sound of bell).

Phenomena associated with classical conditioning:

1. Stimulus generalization:

A dog trained to respond to a particular sound and then tested with a sound of higher or lower pitch will continue to respond. The response to stimuli, which are similar but not identical to the original, is termed stimulus generalization.

2. Stimulus discrimination:

The capacity to respond in the presence of one stimulus and not in the presence of another.

A dog can be trained to salivate in response to a high pitch sound but not in response to a low pitch sound.

3. Extinction:

The process by which a response is removed by repeated presentation of the CS (the sound of the bell) in the absence of the US (the food).

4. Spontaneous recovery:

The process whereby a behavior, which was extinguished again reappears.

B- Operant conditioning (Skinner): (Instrumental learning)

This is based on the observation that behavior, which is followed by a reward, is likely to be repeated, whereas behavior followed by noxious consequences will be eliminated.

An operant is a behavior carried out on the environment.

In order to study such behavior, the animal is placed in a box. After a period accidentally the animal presses a lever present in the box.

This behavior is rewarded with a pellet of food. After a few such occasions this behavior (pressing the lever) becomes established.

Thus, operant conditioning is concerned with the consequences of actions.

Concepts associated with operant conditioning

Reinforcement:

It establishes a connection between a stimulus and a response and can be positive or negative.

A positive reinforce is a reward;

A negative reinforces is the avoidance of an unpleasant event,

both the positive and negative reinforcements increase the rate of behavior, both can be used to reward a desired behavior.

Schedules (patterns) of reinforcement:

1. Continuous reinforcement is presented after every response and is the least resistant to extinction.
2. Fixed reinforcement is presented after a set number of responses (fixed ratio and fixed interval).
3. Variable reinforcement occurs after a random and unpredictable number of responses and is very resistant to extinction. The most rapid acquisition of behavior is associated with variable reinforcement.

Shaping:

Production of new behaviors by reinforcement of natural responses, which approximate to the desired one. It is a procedure whereby behavior already present is used as basis for acquiring new behavior.

Patterns of behavior which approximate to the desired are reinforced. In articulate utterances in the case of a mentally retarded child may be used as the basis for language acquisition. Thus, shaping involves rewarding closer and closer approximations at the desired behavior until the correct behavior is achieved.

Chaining:

Teaching of complex behaviors by breaking them down into simple components. The first action in the sequence is reinforced once acquired. Reinforcement is given only following both the first and second components and so on until the complete sequences is established.

N.B. Chaining and shaping are extensively used in teaching children with severe learning difficulties.

Punishment: A noxious stimulus is presented after a behavior to prevent its recurrence in the future.

II-The cognitive approach to understanding learning:

Cognitive learning involves the acquisition of knowledge or understanding and need not be directly reflected in behavior , it involves changes that occur within one's cognitions. Cognitions are mental representations. They include our ideas, beliefs, understanding

Cognitive concepts of learning

1. Learning sets or learning to learn:

Previous learning experiences can affect present and future learning. In this case making them easier. We can not teach students all the answers to all the questions and problems. Our best hope is to teach them strategies to deal with similar tasks in the future.

2. Latent learning-cognitive map:

When one acquires a cognitive map, one develops a mental representation (or picture) of one's surroundings an appreciation of general location and where objects are located.

3. Social learning and modeling:

Learning takes place through the observation and the imitation of models. Children can learn all sorts of behaviors by watching others or TV.

Factors affecting learning:

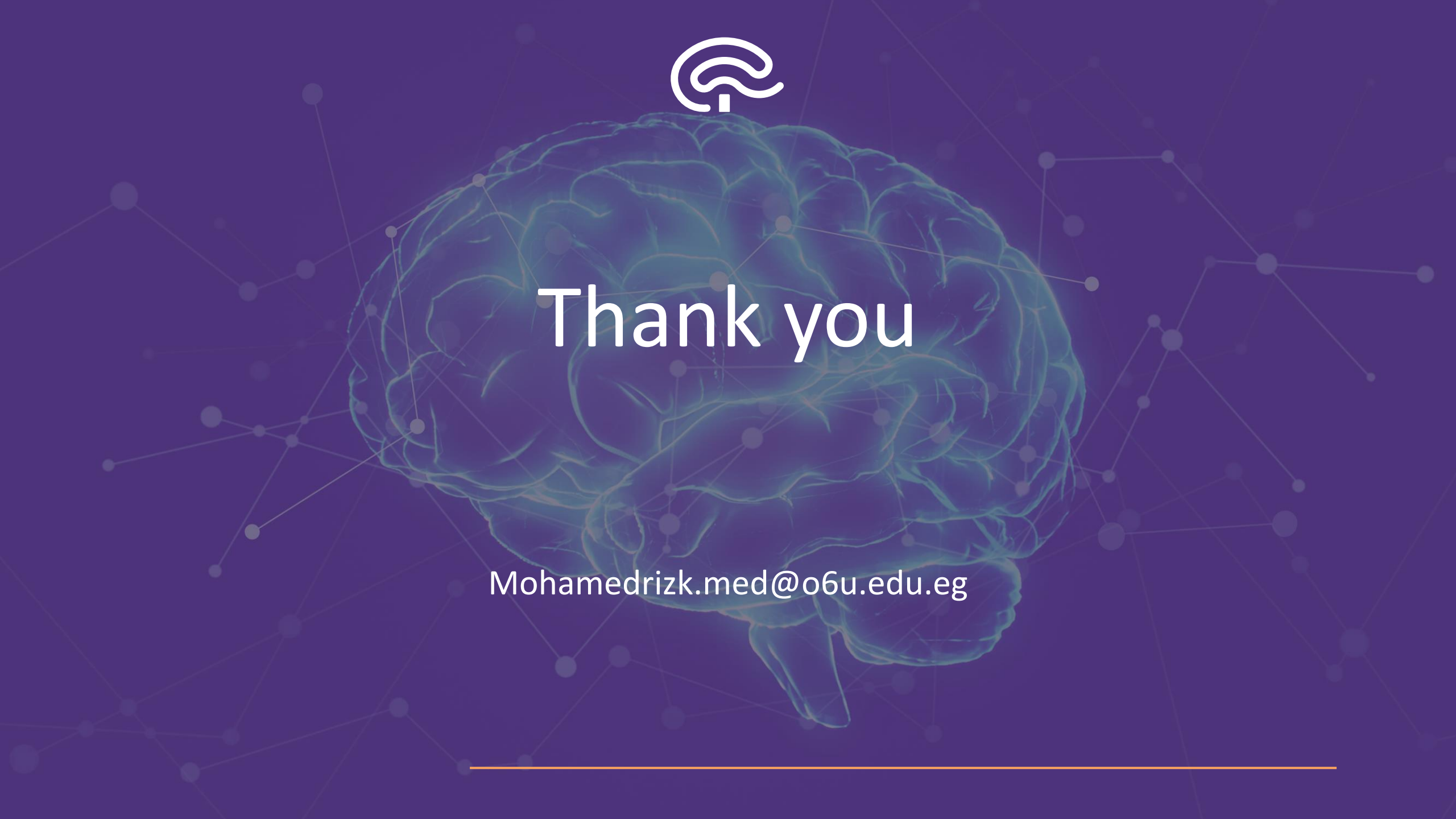
a- Personal factors:

- Intelligence, attention and motivation.
- Physiological state.
- Psychological state.
- Past experiences.

b- Learned material and learning strategy:

- Meaningful more than meaningless material.
- Using of mnemonic devices.
- Selection, emphasizing, summarizing of the learned material.

c- Type of learning:



Thank you

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