INTELLIGENCE
Definition

- Intelligence is a concept defined as, the aggregate or global capacity of the individual to act purposefully, to think rationally and to deal effectively with the environment (Wechsler).
- The ability to use objects known as *mechanical or practical intelligence*. 
It is ‘global’ because it characterizes the individual behavior as a whole, it is an aggregate because it is composed of elements or abilities which, though not entirely independent, are qualitatively differentiable.

- The ability to use symbols known as variable or abstract intelligence.
- The ability to deal with human being in a community known as social intelligence.
I.Q = \frac{\text{Mental age in years}}{\text{Chronological age in years}} \times 100
## CLASSIFICATION OF INTELLIGENCE

<table>
<thead>
<tr>
<th>I.Q Range</th>
<th>Description</th>
<th>% of population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 20</td>
<td>Idiot</td>
<td>1</td>
</tr>
<tr>
<td>20-50</td>
<td>Imbecile</td>
<td>1</td>
</tr>
<tr>
<td>50-70</td>
<td>Feeble minded</td>
<td>2</td>
</tr>
<tr>
<td>70-80</td>
<td>Dullard or Borderline</td>
<td>6</td>
</tr>
<tr>
<td>80-90</td>
<td>Below average</td>
<td>15</td>
</tr>
<tr>
<td>90-110</td>
<td>Average</td>
<td>46</td>
</tr>
<tr>
<td>110-120</td>
<td>Above average</td>
<td>18</td>
</tr>
<tr>
<td>120-130</td>
<td>Superior</td>
<td>8</td>
</tr>
<tr>
<td>130-140</td>
<td>Very superior</td>
<td>3</td>
</tr>
<tr>
<td>above 140</td>
<td>Genius</td>
<td>1</td>
</tr>
</tbody>
</table>
DISTRIBUTION OF INTELLIGENCE

• Intelligence is distributed over a normal distribution curve (Bell-like). This means that few people are very intelligent other few people are very stupid, while the majority are but average
FACTORS AFFECTING INTELLIGENCE

The factors affecting Individual Differences in intelligence are both hereditary and environmental.
1-Heredity: (Nature): It is the inherited features transmitted by genes carried on the chromosomes. The child gets half his chromosomes of either parent, to form a new genetic combination. Therefore,

A. Twin studies consistently show the concordance rate of IQ’s is distributed: Monozygotic > Dizygotic > Sibs

A. Adopted children’s IQ correlates higher with biological (real) parents than with adoptive parents IQ.
2-Environment: (Nurture)

- It is the external environment in which the individual develops, starting from conception (fertilization of the ovum) to the age of 16 - 18 years) at which maximum growth of intelligence occurs.
- Any disturbance of brain development occurring during this period may affect intelligence.
1. Before Birth (antenatal or intrauterine):
   e.g.
   - Teratogenic effect of drugs.
   - Infections particularly syphilis & G. measles.
   - Irradiation of the pelvis.
2. **At Birth (perinatal):**
   - Asphyxia.
   - Birth trauma (e.g. by forceps).

3. **After Birth (postnatal) up to age of 16-18:**
   - Kernicterus (sever neonatal jaundice).
   - Infections (encephalitis, meningitis).
   - Cretinism (hypothyroidism).
• The social environment, like the physical environment has its fingerprints on the intelligence. Therefore social, cultural & interpersonal deprivation is correlated with low IQ scores.
GROUP DIFFERENCES

The following are examples of these differences
1. Rural and Urban differences: The slight superiority in intelligence of city children is due to:
   A. Lesser educational opportunities of the later.
   B. Industrialization encourages immigration to the city emigrants are usually those of higher intellectual abilities.
2. **Occupational differences:** The average intelligence of adults varies according to their occupation. This could be due to the fact that many occupations naturally select those who fit them.

3. **Race Differences:** The belief of race superiority is based upon prejudice rather than on scientific basis.
4. **Sex Differences:** - On the average there is no difference in intelligence between man and women. However man (or boys) tend to do better on Arithmetic Reasoning Intelligence Test & Women (or girls) better on Vocabulary Tests.
MENTAL DEFICIENCY (AMENTIA, SUBNORMALITY, RETARDATION)

• Mental defectiveness a condition of arrest or incomplete development of mind existing before the age of 18 years arising from inherent causes (primary mental deficiency) or induced by disease or injury (secondary mental deficiency).
• It leads to incapacity for independent adaptation to demands of the society and is characterized mainly by low intelligence.

• Mental Deficiency (Amentia): is distinct from Dementia in that the mind has never been normal (has failed to reach a normal stage of development) Dementia is like an individual who was rich and become poor while amentia (deficiency) is like an individual who is poor all his life (see the figure).
DEVELOPMENT OF MIND

A. Normal Individual.
B. Mental decay (dementia).
C. Mental deficiency (sub normality)
The incidence of mental deficiency in the general population is 1%. The intelligence of this group of patients does not exceed 70 IQ points (average intelligence ranges between 90 & 110). Their mental age does not reach more than 7 to 10 years.

Mental deficiency includes the three grades.

Idiots, Imbeciles & Feeble minded.
The characteristic features of each type are

1. Idiot: are individuals whose mental defectiveness is to such a degree that they can not defend themselves against common physical dangers e.g. fire & accidents. Their mental age reaches up to 2 years.
2. Imbeciles: are individuals whose mental defectiveness is to such a degree that they are not trainable or educable. They however can defend themselves against common physical dangers. Their mental age 3-7 years.
3. Feeble-minded: are individuals whose mental defectiveness is to such a degree that can not deal with life without observation and support, they can not be educated in ordinary schools but can however be educated and trained to do simple jobs in special schools their mental age reaches 7-10 years.
<table>
<thead>
<tr>
<th>Type</th>
<th>of % Population</th>
<th>Age Mental</th>
<th>IQ</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idiot</td>
<td>%0.03</td>
<td>Up to 2 years</td>
<td>below 20</td>
<td>Severely retarded Dependent</td>
</tr>
<tr>
<td>Imbeciles</td>
<td>%0.12</td>
<td>years 3-7</td>
<td>20-50</td>
<td>Moderately retarded Trainable</td>
</tr>
<tr>
<td>Feeble-Minded</td>
<td>%0.5</td>
<td>years 7-10</td>
<td>50-70</td>
<td>Mildly retarded Educable</td>
</tr>
</tbody>
</table>
1. **Idiot Savant**: Some Feeble-minded individuals are very clever in a certain ability e.g. arithmetical (multiplying several number in the mind) or musical (knowing by heart many musical tones). Such individual is called idiot savant, although he is not in the category of idiocy as regard the IQ.
2. **Dementia (Mental Decay):** This is gradual & progressive permanent deterioration of intelligence or intellectual functions accompanied by abnormalities of behaviour occurring after the age of 18 years. It is due to the involvement of the brain by a pathological process (inflammatory, toxic, traumatic, neoplastic or degenerative, provided that the brain was (normally developed before-hand).
3. **Terms Often Confused:**

- **Growth**: Means increase in dimensions of the body as a whole as its parts.

- **Development**: Means the change in the shape of the parts in functional units as growth goes on.

- **Maturation**: Is the process by which an organism completes its growth and development.
Approximate Distribution of IQ Scores in the Population
Intelligence Tests

- Stanford-Binet measures four kinds of mental abilities
  - Verbal reasoning
  - Abstract/visual reasoning
  - Quantitative reasoning
  - Short-term memory
Intelligence Tests

• The Wechsler Intelligence Scales
  – The Wechsler Adult Intelligence Scale – Third Edition is the most commonly used test of intelligence for adults
  – WAIS-III is divided into two parts, one that focuses on verbal abilities and one that focuses on performance skills
  – Also a version for children, Wechsler Intelligence Scale for Children – Third Edition
Intelligence Tests

• Group Tests
  – Intelligence tests that can be given to large groups
  – Advantages
    • Quick scoring
    • No examiner bias
    • Easier to establish norms
  – Disadvantages
    • Less likely to detect someone who is ill or confused
    • Might make people nervous
    • Learning disabled children often perform worse
Intelligence Tests

• Performance tests
  – Tests that minimize the use of language
  – Used to test very young children or people with retardation
  – Also can be used to test those unfamiliar with English

• Culture-fair tests
  – Tests designed to reduce cultural bias
  – Minimize skills and values that vary from one culture to another
Criticisms of IQ Tests

- Test content and scores
  - Critics argue that IQ test measure a narrow set of skills
  - Some feel that the tests merely measure test taking ability
  - Tests may discriminate against minorities

- Use of intelligence tests
  - Could result in permanent labeling

- IQ and success
  - Relationship does exist, but may be the result of a self-fulfilling prophecy
Extremes of Intelligence

• Mental retardation
  – Refers to a wide variety of mental deficits
  – Defined as significantly sub-average general intelligence functioning that is accompanied by significant limitations in adaptive functioning
  – Some people with retardation show savant performance on particular skills
### Mental Retardation

<table>
<thead>
<tr>
<th>Level of Retardation</th>
<th>IQ Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>Low 50s-70s</td>
</tr>
<tr>
<td>Moderate</td>
<td>Mid 30s-low 50s</td>
</tr>
<tr>
<td>Severe</td>
<td>Low 20s-mid 30s</td>
</tr>
<tr>
<td>Profound</td>
<td>Below 20 or 25</td>
</tr>
</tbody>
</table>
Extremes of Intelligence

• Giftedness
  – Refers to superior IQ combined with ability in academics, creativity, and leadership
  – Giftedness is often in specific areas
  – “Globally” gifted people are rare
Creativity

• Creativity can be defined as the ability to produce novel and socially valued ideas or objects

• Creativity and intelligence
  – Intelligence and creativity are related, but only up to a certain threshold
  – Above about 110 IQ they are virtually unrelated
  – Creative people are often perceived as intelligent
• Creativity tests
  – Open-ended questions are used
  – Scoring is based upon the number and originality of a person’s answers