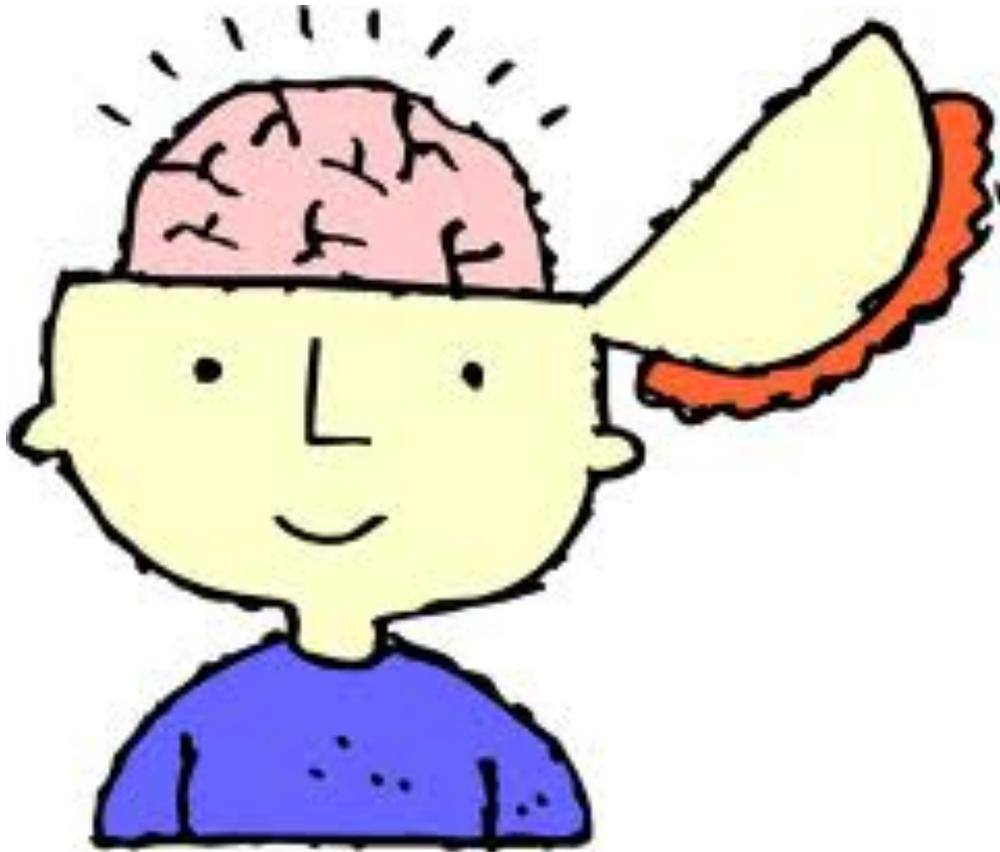


Bryant-Taneda

# AP Psychology 12

## Ch.11 Introduction to Intelligence



# What is Reification?

- Treating something *abstract* as real or concrete
- For example, *Personality Traits* are constructs and not real. So, we treat, for instance, a person labeled a “Smart” person as a more superior person

## 'REIFICATION'



# Difference in average test scores

- There can be *different* average test scores in two groups
- This difference can be a product of **Nature** (genetics) or **Nurture** (environment) or both!



# Hereditability of intelligence

- The difference in intelligence due to DNA, brain material, and genetics
- The percent of variation due to genetic factors: most researchers believe it is between 60-80%
- Most studies have been using middle-class white subjects



# Intelligence scores

- Researchers have noted intelligence scores show stability by mid teens
- After the age of 4, future intelligence scores can be predicted



# Intelligence Quotient - Stern

- William Stern invented the concept of IQ
- Intelligence Quotient is a ratio
- **IQ** is the Mental Age divided by the Chronological Age
- $MA/CA \times 100 = \mathbf{IQ}$



# 1900 CE Binet

- **Alfred Binet** (believed **Nature** our genetics fostered our intelligence); he invented the *Intelligence Test*. His principal goal: Binet hoped to identify students who needed help coping with the curriculum.
- **Lewis Terman** (believed **Nurture** our environment fostered our intelligence); he made refinements to the IQ test at Stanford Uni and called it the Stanford-Binet. This new test measured intelligence level (IQ).



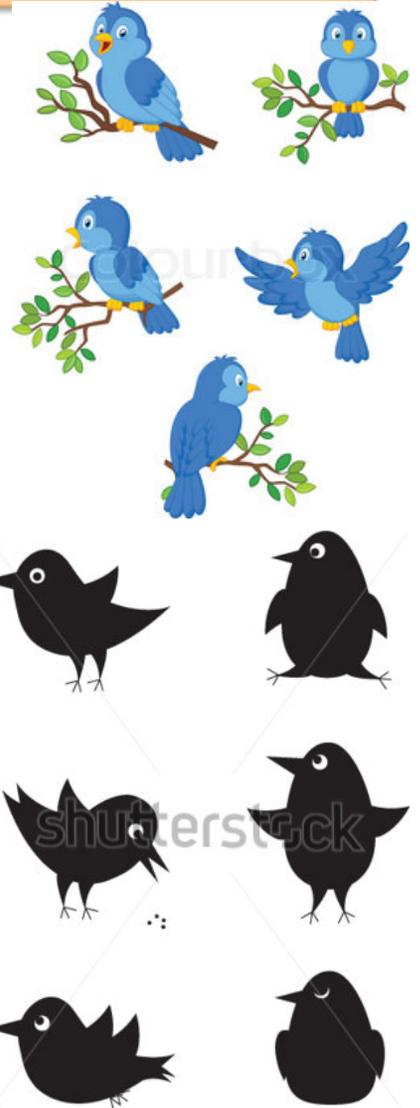
# Mental Age

- Mental Age is a concept related to intelligence. It looks at the level of a person's performance compared to average intellectual performance of others of the same age.



# Grouping like “Blue birds” and “Black birds” Reading groups

- Grouping or *streaming* students into similar intelligence groups does seem to help those placed in the smaller “brighter” groups.
- Research on grouping students in the lesser groups, shows that for those grouped in the “lesser” groups it decreases self esteem.
- This research also shows that for the “lesser” groups, there is little effect on academic achievement.



# Achievement or Aptitude

- **Achievement** assesses *learned knowledge* or skills; this is like the grade you receive on a test, lab, or essay
- **Aptitude** is the component of the *competency* to do a certain kind of work at a certain level; it is a *potential* natural ability to do something. This is like the computer test you take to assess what type of job you are best suited



# Practical & Academic Intelligence

- Practical Intelligence: the ability to grasp, understand and deal with everyday tasks. Individuals use and find the best fit between themselves and the demands of the environment.
- Academic Intelligence: the ability to learn from books and take tests.



# Creativity

Creative Intelligence is the capacity to deal with new situations using past experiences and current skills.

How do you stir up more creativity? Focus on things you find interesting; give yourself opportunities to do things you enjoy



# Intelligence and Correlations

## **Positive Correlation** -

Head size and Intelligence; therefore, an increase in head size is connected to an increase in intelligence.

**Positive correlation** – Brain size and Intelligence; therefore, an increase in brain size is connected to an increase in intelligence.

**Negative correlation** – Intelligence performance and lesser (efficient) use Glucose energy; therefore, an increase in intelligence performance is connected to a lower usage of Glucose energy (brain food)

# Validity, Reliability, Standardization

- *Validity* is the extent to which a test measures or predicts what it is supposed to.
- *Reliability* is the extent to which a test yields consistent results.
- *Standardization* is defining meaningful scores relative to a pretested group. These scores are then used to compare different (tested and similar) groups. The English 12 B.C. Provincial exam is standardized so that officials can compare different English Grade 12 groups (students or schools) in B.C.

# Savant

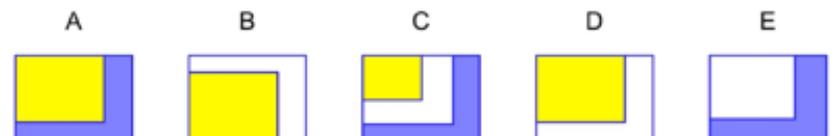
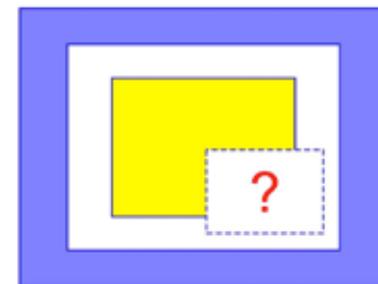
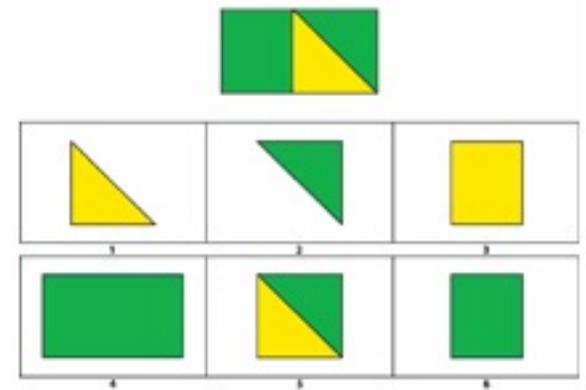
- A mentally challenged person who has scored less than 70 I.Q. and has one exceptional talent. *Rainman* was extremely capable with numbers (he could quickly count the toothpicks dropped on the floor)
- Stephen Wiltshire viewed an image and then was able to capture *all* the detail on canvas



# Wechsler Adult Intelligence Score

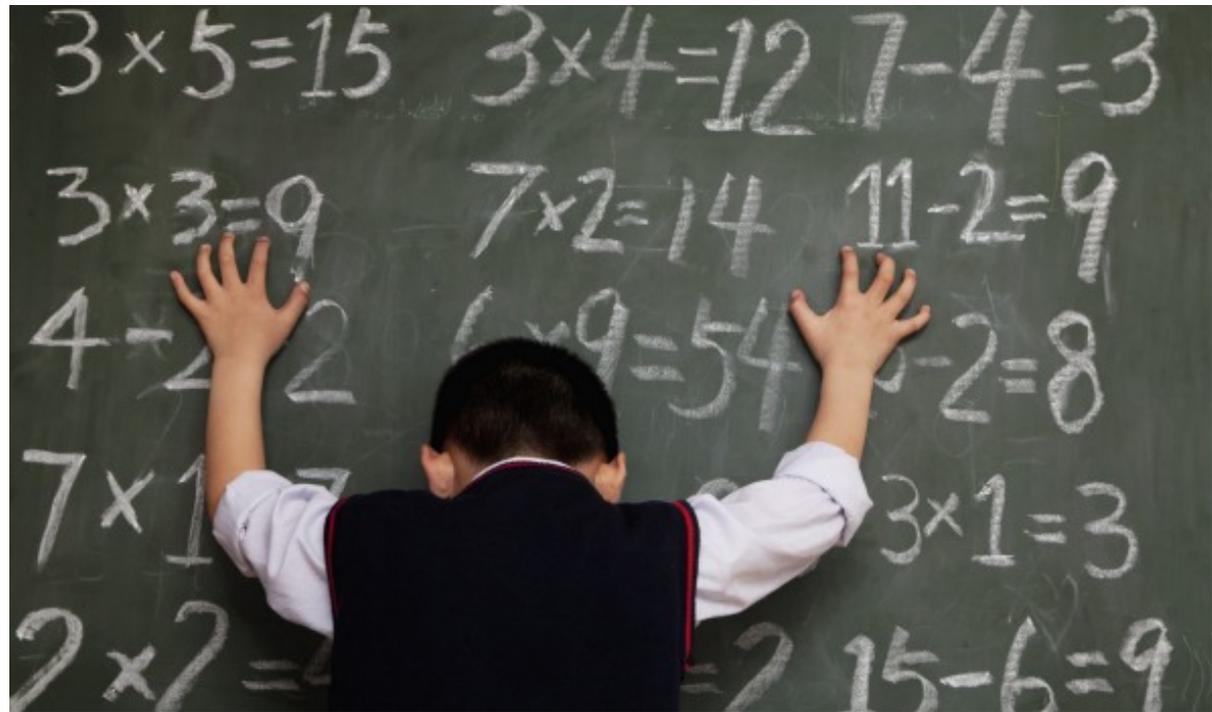
- WAIS focusses on being a non-biased test
- The test uses *object* assembly, *picture* arrangement, and *block* design
- 1<sup>st</sup> Question: the answer is the bottom pieces
- 2<sup>nd</sup> question: the answer is D

Which 3 of these pieces go together to make this puzzle?



# Asian Math Achievement

- There is stereotype that all Asians are math smart
- However, most Asian Schools have a *longer* school year
- And, most Asian Schools start math at an *earlier* age



# g factor

- This is a construct developed in *psychometric* (theory and psychological measurement) investigations of cognitive abilities and human intelligence.
- The **g factor** is the idea of *General* intelligence; according to Spearman and others, this underlies specific mental abilities.
- The **g factor** is measured by every task on an intelligence test.