

How do we construct Intelligence tests?

Tests must be:

- Valid
- Reliable
- Standardized

Validity & Reliability

Validity: The extent to which a test measures what it is supposed to measure.

- *Content Validity*: does the test actually sample a behavior it is measuring?
- *Predictive Validity*: does the test accurately predict future behavior?



Reliability: The extent which a test yields consistent results over time.

Reliability

The extent which a test yields consistent results over time.

Test-Retest Reliability

- Administering the same test to the same set of examinees on two separate occasions.

Questionnaire (Completed 9/20)

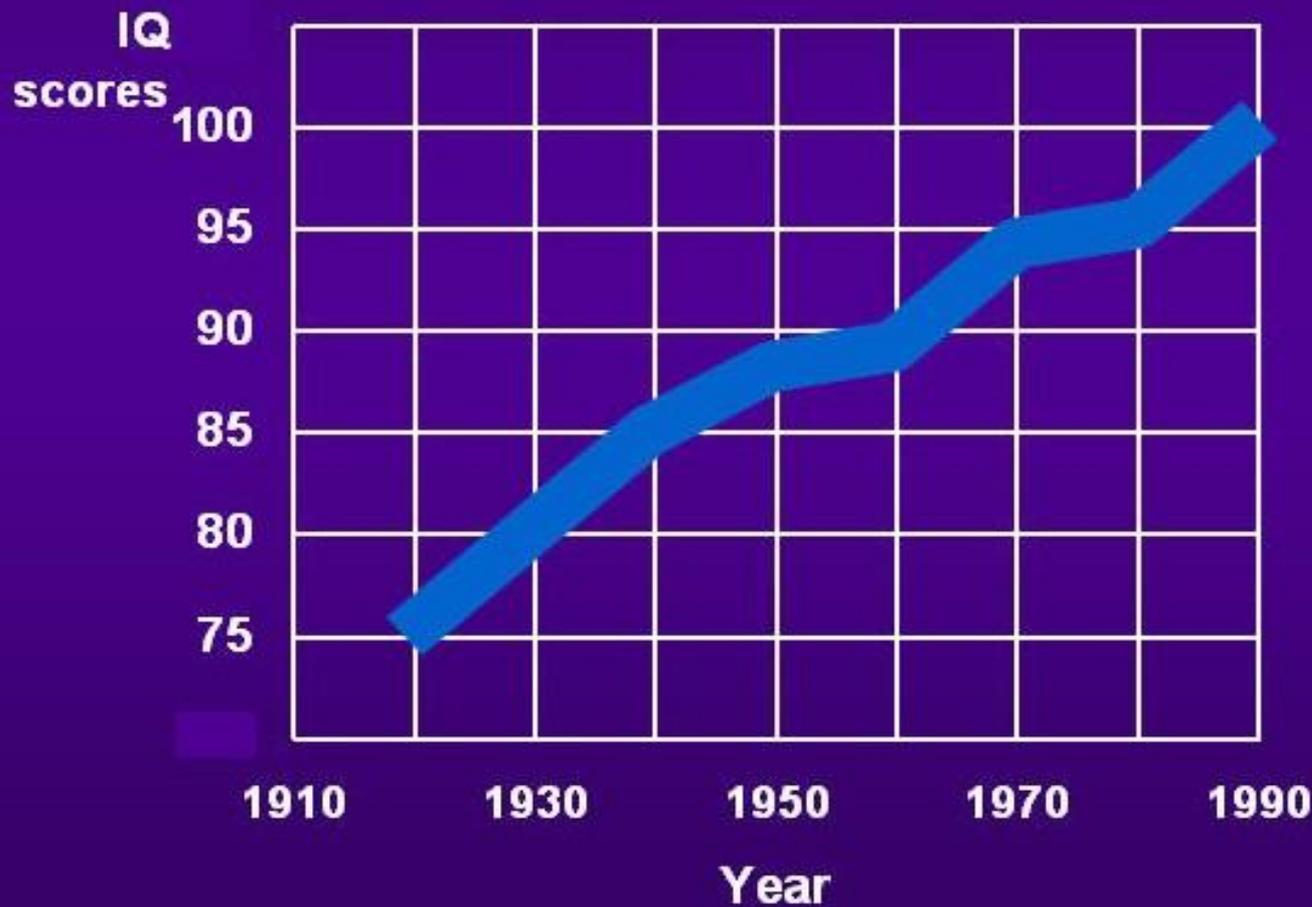
- 4 I feel I do not have much proud of.
- 3 On the whole, I am satisfied with myself
- 2 I certainly feel useless at times
- 1 At times I think I am no good at all
- 4 I have a number of good qualities
- 3 I am able to do things as well as others

Questionnaire (Completed 9/27)

- 4 I feel I do not have much proud of.
- 4 On the whole, I am satisfied with myself
- 1 I certainly feel useless at times
- 1 At times I think I am no good at all
- 4 I have a number of good qualities
- 4 I am able to do things as well as others

Standardization

- Defining uniform testing procedures and scores by comparing scores to a pre-tested group.
- Tests like WAIS are periodically re-standardized. (The average intelligence score in 1920 would only score a 76 by today's standard.)
- This also helps to eradicate biases due to gender, race, culture, socio-economic status, special-needs, etc.



Flynn Effect:

- Performance on IQ scores has steadily increased over generations

Perhaps due to better nutrition, living standards, educational opportunities, and more recently, technology, general intelligence is increasing.

Does Intelligence Change Over Time?

- By age 3, a child's IQ can predict adolescent IQ scores.
- Depends on the type of intelligence, crystallized or fluid.



What is fluid intelligence?

- Our ability to learn new things, like technology.



Our ability to reason quickly and abstractly, such as when solving logic problems

What is crystallized intelligence?

- Old people intelligence, ability to relate information to past experiences.



One's accumulated knowledge, including vocabulary, that has built up over a lifetime.

Extremes of Intelligence

- Intellectual disability (formerly mental retardation,) requires meeting 2 criteria:
 - Low test score AND difficulty adapting to normal demands of independent living
- 1% of the population meets this criteria
- Males outnumber females by 50%

▪ Down Syndrome

- Intellectual disability and associated physical disorders caused by an extra chromosome in one's genetic makeup



Extremes of Intelligence

- Intellectual Disability
 - Refers to sub-average general mental ability (IQ < 70-75) accompanied by deficits in adaptive skills, originating before 18.
 - Disability may be mild, moderate, severe, or profound. (85% are mild)
 - Many organic conditions can cause this disability, but a specific organic cause can be identified in only about 25% of cases
 - Cases of unknown origin tend to involve mild levels of disability and are believed to be mainly caused by unfavorable environmental factors.

TABLE 11.3**DEGREES OF MENTAL RETARDATION**

Level	Approximate Intelligence Scores	Percentage of Persons with Retardation	Adaptation to Demands of Life
Mild	50–70	85%	May learn academic skills up to sixth-grade level. Adults may, with assistance, achieve self-supporting social and vocational skills.
Moderate	35–50	10%	May progress to second-grade level academically. Adults may contribute to their own support by laboring in sheltered workshops.
Severe	20–35	3–4%	May learn to talk and to perform simple work tasks under close supervision but are generally unable to profit from vocational training.
Profound	Below 20	1–2%	Require constant aid and supervision.

Source: Reprinted with permission from the *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition, text revision. Copyright 2000 American Psychiatric Association.

Table 11.3

Myers: Psychology, Eighth Edition
Copyright © 2007 by Worth Publishers

Extremes of Intelligence

Sho Yano was playing Mozart by 4, aced the SAT at 8, and graduated summa cum laude from Loyola University at age 12. He then began PhD-MD studies at the University of Chicago



Extremes of Intelligence

- Giftedness
 - In practice, efforts to identify gifted children focus almost exclusively on IQ scores, with a score of 130 as the typical minimum.
 - For the most part, gifted children tend to be above average in social and emotional maturity.
 - Although gifted children tend to be successful in life, very few go on to make genius-level contributions.
 - Gifted programs have created controversy

Gender Differences

Three people were hiking through a forest when they came upon a large, raging violent river.

Needing to get on the other side, the first man prayed, "God, please give me the strength to cross the river."

Poof! God gave him big arms and strong legs and he was able to swim across in about 2 hours, having almost drowned twice.

After witnessing that, the second man prayed, "God, please give me strength and the tools to cross the river."

Poof! God gave him a rowboat and strong arms and strong legs and he was able to row across in about an hour after almost capsizing once.

Seeing what happened to the first two men, the third man prayed, "God, please give me the strength, the tools and the intelligence to cross river."

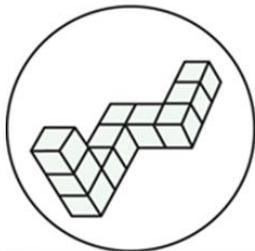
Poof! He was turned into a woman. She checked the map, hiked one hundred yards up stream and walked across the bridge.

Group Differences

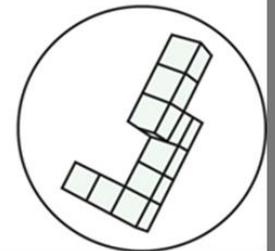
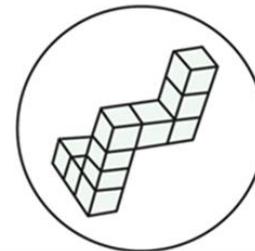
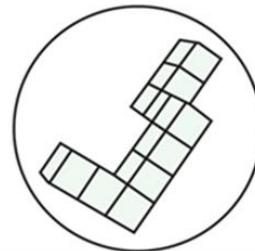
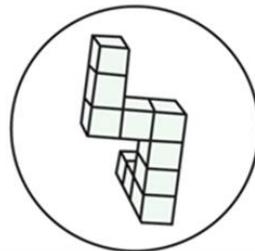
- **Gender Similarities & Differences**
- Girls are better spellers
- Boys outnumber girls at the low extremes.
- Boys tend to talk later and stutter more often.
- In remedial reading classes, boys outnumber girls 3 to 1.
- In high school, underachieving boys outnumber girls 2 to 1.
- Women are better at detecting emotions than men.
- Who is better at math?

Which two circles contain a configuration of blocks identical to the one in the circle at the left?

Standard



Alternatives

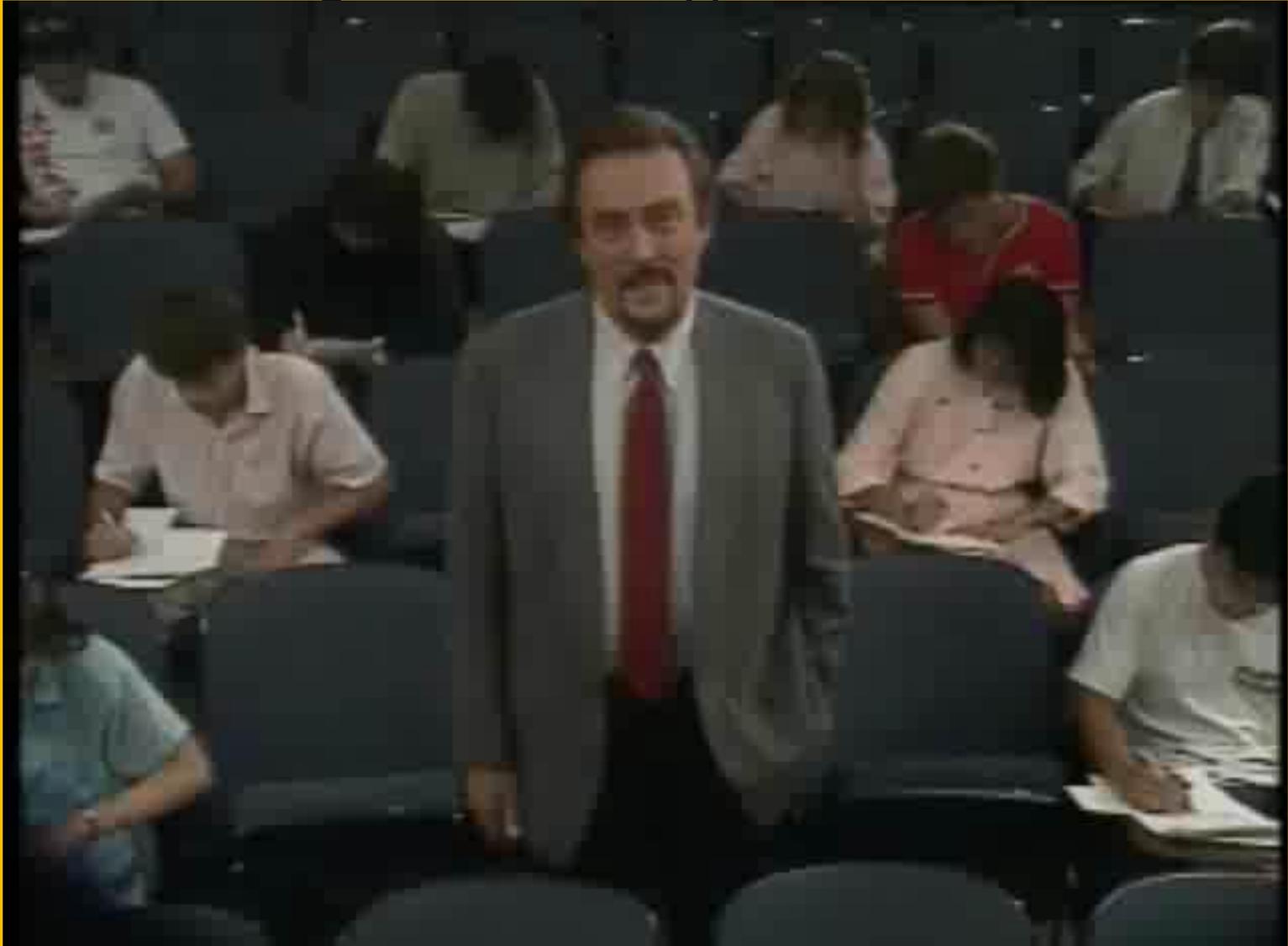


Racial Difference in IQ

- Racial difference in average IQ among different racial groups can be measured
- More variation in IQ scores within a particular group than between groups

Claude Steele - Stereotype Threat

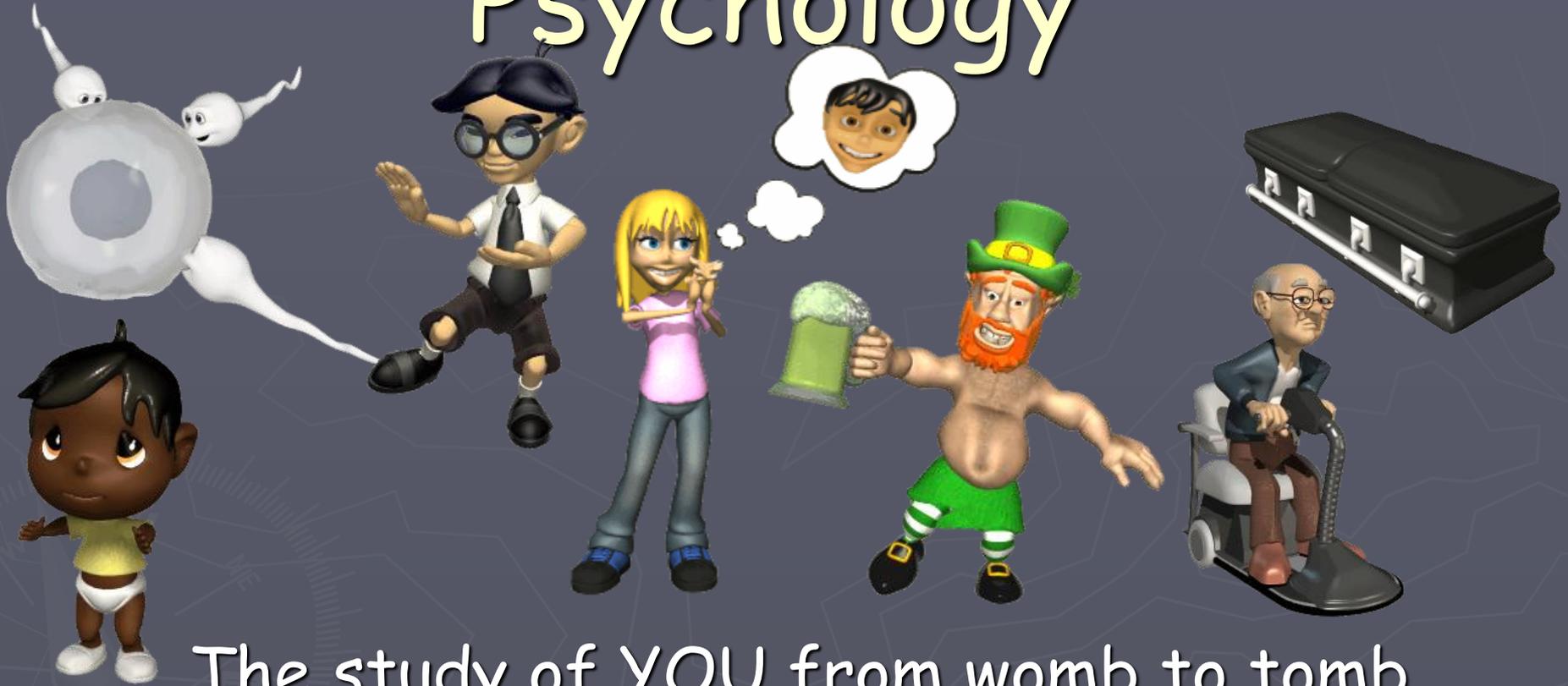
- A self-confirming concern that one will be evaluated based on a negative stereotype



Test Bias?

- Most experts would agree that intelligence tests are "biased" in the sense that test performance is influenced by cultural experiences.
- But some argue that their sole purpose is to discriminate.
- We have to look at the type of discrimination.
- More variation in IQ scores within a particular group than between groups

Developmental Psychology



The study of YOU from womb to tomb.
We are going to study how we change physically, socially, cognitively and morally over our lifetimes.

Nature Versus Nurture

While going through this unit always been in the back of your head....

Are you who you are because of:

- ▶ The way you were born- Nature.
- ▶ The way you were raised- Nurture.



Research Methods

Cross-Sectional Studies

- ▶ Participants of different ages studied at the same time.



Longitudinal Studies

- ▶ One group of people studied over a period of time.



Prenatal Development

- ▶ Conception begins with the drop of an egg and the release of about 200 million sperm.





Once the sperm penetrates the egg- we have a fertilized egg called.....

The Zygote

The first stage of prenatal development. Lasts about two weeks and consists of rapid cell division.