Week 8 - Day 1 (Ch 7 - Part 3 Intelligence)

Monday, February 29, 2016

12:03 PM

Quizlet: <https://quizlet.com/_22fvsa>

Changing representations

* In trying to solve a problem, we commonly think back to how we have solved similar problems
  + **Mental sets**
* Functional fixedness - mental representations about the typical functions of particular objects can also create difficulties

Ex

* Imagine you are reading a book
* Someone breaks into the room
  + They are large and carrying a large knife
* How close is your nearest weapon
  + It's your book
  + Hard to think about a book as a weapon

Ch 7 - Part 2

Think about the most intelligent person you know

* What sets them apart?

**Intelligence**

* Intelligence differs in individuals
* Psychologists consider two aspects when measuring it
  + How do they apply it
  + The degree to which intelligence is determined by genes
* Assessed using psychometric tests
  + Focuses on how people perform on standardized tests
    - Focus on
      * Achievement
        + What have you already learned
      * Aptitude
  + Some of the earliest most widely used intelligence tests were created by Alfred Benet by the French government

Intelligence Quotient (IQ)

* Binet introduced concept of **metal age**
* **IQ**
  + For children (mental age/chronological age)\*100

Across large groups of people, the distribution of IQ scores forms a bell curve, or normal distribution

* Most people are close to the average

With these types of tests, are we actually measuring intelligence directly?

* Marilyn vos Savant
  + Obtained an IQ score of between 170 - 228
  + Intelligence contains so many factors that "attempts to measure it are useless"

We know that IQ is related to things that we tend to associate with intelligence

* IQ is fairly good predictor of life outcomes (e.g. doing well at school)
* Data suggests modest correlations between IQ and work performance, IQ and income, IQ and jobs requiring complex skills

IQ scores typically predict only about 25% of the variation in performance at either school or work

* IQ may be important, but it is only one of the factors that contribute to success in the classroom, the workplace, and life generally
* Additional factors include background, self-control, motivation, and willingness to work

Problems with IQ tests?

* One important criticism of intelligence tests is that they may penalize people for belonging to particular cultures or particular groups
* Culturally specific knowledge may affect scores
  + Meaning of work "fantastic"
  + Meaning of word "trombone" vs the word "pipa"
* IQ tests reflect Western cultural values and modes of thinking
  + What is adaptive in one society is not necessarily adaptive in others
    - We classify peaches as fruit, but other cultures just classify it as sweet

Does the physical structure of the brain reflect intelligence?

* Many studies have documented a relationship between head circumference, which researchers use to estimate brain size, and scores on intelligence tests
  + These are small but significant correlation between the size of selected brain structures on intelligence tests
* Different kinds of intelligence seem to be related to the size of certain brain regions
  + These regions include areas associated with walking, etc

Do groups differ in terms of intelligence

* Do males and females differ?
* Do various racial and ethnic groups differ?

Sex differences

* Most psychometric tests of intelligence are designed to avoid sex differences
* However, tests that do show that men and women perform differently in different areas, but not necessarily better or worse

Stereotype threat

* Some groups are more susceptible to performing poorly due to concerns about stereotypes
* Make people concerned with things that they are stereotypically bad at, they will perform worse
  + It's a combo of over-thinking that you don't want to be stereotyped and buying into the idea

Intelligence has been measured in other ways as well

* One line of research examined the correlations among intelligence test items using factor analysis
  + In this statistical technique, items similar to one another are clustered, and the clusters are referred to as factors

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Mechanical 
Arithmetical 
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@2W7 HSher

* G is pretty important
  + Low g is related to early death from heart disease, diabetes, stroke, Alzheimer's, traffic accidents, and drowning
* **Multiple intelligence**
* Musical, bodily-kinesthetic, linguistic, mathematical/logical, spatial, interpersonal, and interpersonal intelligence
* Polyglot, multi-instrumentalists

Others have theorized that there are three types of intelligence

* Analytical
  + Similar to that measured by psychometric tests - being good at problem solving and other academic challenges
* Creative
  + Involves the ability to gain insight and solve problems
* Practical

**Emotional intelligence**

Regardless, intelligence is associated with faster mental processing

* People who score higher on intelligence tests respond more quickly and consisted on reaction time and inspection

**Savants**

* Have minimal intellectual capabilities in most domains, but at a very early age each savant shows an exceptional ability in intelligent process
* A savant's exceptional ability may be related to math, music, or art
* The combination of prodigious memory and the inability to learn seemingly basic tasks is a great mystery; this rare combination adds a dimension to our understanding of intelligence

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| Mental sets | Problem-solving strategies that have worked in the past |
| Intelligence | Ability to use knowledge to reason, make decisions, make sense of events, solve problems, understand complex ideas, learn quickly, and adapt to environment |
| Mental age | Compared to other people of the same age, how you perform mentally |
| IQ | An index of intelligence (computed by dividing mental age by chronological age and multiplying by 100) |
| Multiple intelligences | Idea that there are different types of intelligence which are independent of one another |
| Emotional intelligence | Form of social intelligence that emphasizes regulating and recognizing yours and others' emotions |