Study Guide[1]   Chapter 7

Read: **IQ/Intelligence – all of chapter 7 (except 7.2), Anchoring Bias and Framing Handout, & Hindsight Bias Handout.**

Genes: Section 3.1 in chapter 3 & Twin Study Handout

Chapter 3 Genes: section 3.1 only.

1. How does the text explain how the gene(s) for sickle cell anemia (a genetic condition that can kill) can continue to be passed down?
2. The gene that codes for hair color has many different versions or variations. These different variations of a gene is called _____
3. What is the difference between genotype and phenotype?
4. Having a smooth chin is a recessive trait. Having a cleft chin is a dominant trait. What is the likelihood of a child having a cleft chin if both parents have smooth chins?
5. Assume that Bob came from a family where most of them had very high IQs. Assume that Jim came from a family where most of them had low IQs. Remember genes play a role in determining IQ. Bob <u>probably</u> has higher "IQ genes" than Jim. There is a notion that the environments they are raised in, provides a range of where their IQs may actually fall. I.E. if Bob is raised in an impoverished environment and Jim in an enriched one, then it may be possible that Jim could have a higher IQ than Bob even though Bob inherited better IQ genes. What is the name for his notion?
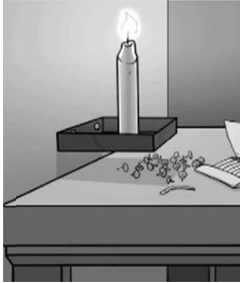
From the Twin Study Handout

1. For purposes of the twin study research method, what is the most important difference between MZ and DZ twins?
2. In the twin studies, what do we need to see when we compare the similarities (correlation) of MZ twins to the similarities (correlation) of DZ twins so that we can conclude that genes matter (or play a role)?

Study Guide Chapter 7 in book:Thinking & Intelligence (skip 7.2) plus 3 handouts: Anchoring Bias and Framing Handout, & Hindsight Bias Handout.

3. If you had to associate one word with the word "cognition", what does your text say it should be?   T _ _ _ _ _ _ _
4. What is a prototype?
5. Another name for a concept is a C _ _ _ _ _ _ _.
6. I am a Martian that just landed on earth and I am walking around the city and see many little animals on leashes being held by humans. Your earth friend lets you know that these little creatures are similar to each other in a number of ways, but different from other creatures as well. Your friend tells you they are dogs and they are a concept. But according to the text what type of concept are they (given that you learned about this concept from experience)?

7. What category does the figure at the right belong in? _____

   Is this a natural or artificial category?

8. A schema sounds like a category in many ways. How is it different? Try to find the answer and get back to the class eh? (I looked and couldn't find a good answer) It looks to me like a schema is broader in that you can have "role schema" or "event schema" aka a "script". For our purposes, they are pretty much the same. Know that one benefit of us having schemas is that they help us process and understand new information. I'll give an example in class.

9. Which problem solving strategy would work best if you had to open a lock and someone gave you a ring of 20 keys and you know one of the keys would work?

10. What is an algorithm? Know also that we can use them when trying to categories objects into artificial/formal categories. For example, how did you know to categorize the object #5 as a triangle? You may have used a set of rules: 3 sides, no curves, no holes. Using rules like this in order to reach a decision is "using algorithms".

11. I'm thinking of a method to solve a problem. This method is also known as a "rule of thumb". It is efficient and can usually lead to a correct solution, but not always. So the upside is speed and efficiency, but the downside is that it sometimes leads to a wrong answer. What method am I thinking of? H _____.

12. In a classic experiment demonstrating _____ Duncker gave participants a candle, a box of thumbtacks, and a book of matches, and asked them to attach the candle to the wall so that it did not drip onto the table below. Duncker found that participants tried to attach the candle directly to the wall with the tacks, or to glue it to the wall by melting it. Very few of them thought of using the inside of the box as a candle-holder and tacking this to the wall. In Duncker's terms the participants were "stuck" on the box's normal function of holding thumbtacks and could not re-conceptualize it in a manner that allowed them to solve the problem. For instance, participants presented with an empty tack box were two times more likely to solve the problem than those presented with the tack box used as a container. Fill in the blank in the first sentence.

13. Nancy is asked for the last 2 digits of her SS number and she said 78.

    Bill was asked the same and he said 21.

    Then both were asked "What percentage of African countries are in the United Nations?"

    Nancy guessed 75%, while Bill guessed 35%.

    What bias or heuristic predicts such an outcome: That Nancy would give a higher estimate than Bill?

14. You work for a meat processor and are asked to design a label for your ground beef.

    Which should you say:

    a. 80% lean, or

    b. 20% fat

    What heuristic or bias is at work here?

15. What is the confirmation bias?

16. What is the hindsight bias (see text table 7.3 and text in section 7.3 plus handout)

17. What is the representative heuristic?
18. What is the availability heuristic?
19. What is the main point of Gardner's theory of multiple intelligences?
20. Our text doesn't mention this, but the original way to measure IQ was to use the concepts of mental age and chronological age. Researchers noticed that, for example, a 10 year-old dumb kid scored on tests like a younger child (a low mental age). And a 10 year-old smart kid scored on tests like older kids (a higher mental age). So they sought to use a ratio of the two (mental age & chronological age) in order to come up with a measure of IQ – Intelligence Quotient. This was computed using the ratio method, with the following formula:
Mental age ÷ Physical/Chronological age × 100 = IQ
No matter what the child's chronological age, if the mental age is the same as the chronological age, then the IQ will equal 100.
Modern intelligence tests, no longer compute scores using the IQ formula. Instead, intelligence tests give a score that reflects how far the person's performance deviates from the average performance of others who are the same age. If you score right in the middle of the distribution of people your age, then you IQ is defined to be an IQ score of 100. If you score higher than the average score for your age, then your IQ is defined as greater than 100.
For example, you are 10 and you take an IQ test and get 47 points correct. If the average of all other 10 year-olds is 47, then you are right in the middle of the distribution of your same-aged peers and your IQ is thus defined to be 100 (right in the middle).

21. Using the modern method of IQ scoring, can you get smarter from grade 4 to grade 5 but have your IQ go lower? Explain.

22. In the table below, we see the age of kids and the average number of questions they get correct on an IQ test. According to the older method of determining IQ (see question 22), if Billy was 12 years old and scored 40 question correct, what would be his IQ?

Age	Average Number Correct
9	40
10	60
12	80

23. Assume you take a creativity test from me but then a few years later take the same creativity test from someone else. The 2 tests are administered in radically different ways such that you can't really compare the 2 scores. The problem is the test lacks
S _____

24. If I give you Kramer's Anxiety test and tell you that you scored 47. You aren't satisfied yet because you have no idea if 47 is good or bad. You want to know how you compare to others, either anxious or non-anxious people. In order to give you that information, the test needs N _____s,

25. Early IQ tests were developed for one purpose. (Starting with Binet). What was that purpose?

26. What is a bell curve?

27. Jack came from a family of average intelligent people. We know that IQ is partly heritable meaning that his IQ will tend to resemble those whom he shares the most genes with. But the environment will also influence what IQ he will have. This notion that genes provide a fixed limitation on IQ but that a final IQ will depend on the environment is captured by the concept/theory of _____ _____.