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## Chapter 2

4.) A hypothesis is a guess that can be tested. A hypothesis is what connects an idea and real life.

A theory is a set of ideas that are explained through research.

In comparison a can be backed up by evidence and testing, a theory has evidence and a reason for a phenomenon. Opposed to a hypothesis that does not have any observed evidence. A hypothesis is a purposed idea with little to no evidence.

5.) Sigmund Freuds theories are widely known and still taught today for their importance in history. Although in today's age you will notice a criticism in Freuds theories, because of they are not falsifiable. His ideas are interesting and are still taught today because of their historical importance. Some of his theories are the root of therapy as well. I do agree with Freuds theories not being falsifiable.

7.) A positive correlation defined is when one variable increases the other does as well, the same being when one decrease so does the other. A negative correlation results in two variables moving in different directions, usually the opposite direction. An example as shown in the text of a positive correlation being a person's age and number of wrinkles, ice cream and crime rates. A

negative correlation example is the correlation between tiredness and hours of sleep. The difference is the positive correlation variables moving in one direction whereas the negative correlation variables move in different directions usually opposite of each other.

11.) The role of skepticism is an important role in the world of scientific research because it asks the question of why something would/ should be considered valid. It forces scientist to really examine their claim and provide proof for their stance. However, on the flip side skepticism in research, can lead to the extreme of not believing in the variable even after proven with proper evidence and explanation. I believe skepticism in scientific research is especially important. In my mind skepticism it is equivalent to double checking your work and really finding the importance of a variable through research.

24.) Experiments are very different from other types of research because of their hands on research. In order to really dig deep into a hypothesis validity, you would need to test your hypothesis through and experiment. The experimental design of assigning participates to groups are through many ways. The first being the experimental group and the control group. Both groups are designed to be the same all but a singular difference. Experimental groups are the group that experiences experimental manipulation. Experimental manipulation is the only factor that could cause a difference between both experiments. Another form of experimental studies done is the placebo effect, is usually practiced when testing a new medication. In this situation this experiment will consist of two groups one being the experimental group and that one will receive the medication. The other group will be the control group this group will not receive the

medication. In this situation neither participant know if they received the actual medication or not. Giving the experiment interesting insight to a person's reaction to the placebo effect.

### Chapter 3

31.) In Charles Darwin's theory of the theory of evolution by natural selection, Darwin states that living things that are compatible to their environment will in fact survive and produce offspring. Meaning that creatures not well suited to their environment will die. I do not agree with Darwin's theory. Even though certain creatures not suitable to cold temperatures will most likely die off from the cold due to lack of compatibility. However, creatures and humans alike except certain environmental challenges and fight for survival. Turtles have a shocking was of surviving in freezing climate a turtle slows its metabolism down as the temperatures drop, which means lower energy and lower oxygen is needed to survive. I believe Darwin's theory might put the capability of what God can do in a box. A turtle is a cold-blooded creature that prefers sun and warmth and does not have fur, off appearance would be a prime candidate for cold temperatures. How incredible that a turtle can slow its metabolism and survive freezing temperatures and survive.

33.) All three (chromosomes, DNA, and genes) are related and work very closely together. Each play an important role when it comes to a person's traits. Chromosomes are strings of genetic material, the string on a chromosome are known as DNA or deoxyribonucleic acid. In the chromosome you will find that sequence DNA construct genes. Genes are what give a person specifics characteristic, such eye color, skin color, and dimples.

39.) The frontal lobe located at the forward part of the brain and is responsible for reasoning, motor control, emotion, and language. The part of the brain that is needed for language production is the Broca's. The Broca is responsible for producing words. The second area of the brain that is essential for language function is the Wernicke's area. The Wernicke's area is very important for the ability to grasp communication. Damage to either the Broca's area or the Wernicke's area of the brain can affect the comprehension and verbal communication of a person.

40.) Describe a behavioral change that Phineas Gage expressed following injury to his frontal cortex and limbic system. Briefly describe potential methodological limitations of this study. Phineas was working like any other day at his place of employment the railroad construction site when an iron rod penetrated through the top of his skull through his left eye. The methodological limitations of this specific study might be affected by the little scientific care and tests that might have done on Gage after his accident. Being able to refer to his skull you can clearly see that the frontal cortex and limbic system were affected by this accident. Which affected his planning functions and emotional functions. Planning being affected because of the damage to his frontal lobe and emotional function being affected due to the damage of his limbic system. Gages friends shared the fact that Gage had difficulty controlling certain impulses.

44.) Antagonists are differing from agonists in the sense that antagonists block and impede the

activity of neurotransmitters. Whereas agonists mimic normal activity of a neurotransmitters. Although opposites they do work together to help chemical imbalances. For example, symptoms of schizophrenia contain an excessive amount of dopamine. Antagonists are what are used to treat the over-production of dopamine by blocking dopamine. Together both agonists and antagonists correct neurotransmitter imbalances.