Cerebral cortex and phineas gage

Cerebral Cortex and Phineas Gage Debbie Mintz PSY 360 July 25, 2011 Phineas Gage Paper Phineas Gage was a man who was a leader at his job and was a very likeable person. Hisfamilyand friends agree that he would helpful to anyone, he was happy, and easy-going person. Then he received brain damage to his cerebral cortex, which is one's cognitive functions are within their lobes located in the brain. Humans have four kinds of lobes located within the cerebral cortex that do different functions.

Human Brain The human brain is covered with tissue known as the cerebral cortex, which large furrows (fissures) and small furrows (sulci), and there are ridges between the fissures and sulci known as gyri. Under the cerebral cortex tissue are four lobes, each lobe has a role in a humans cognitive functions. Phineas Gage was a man who received brain damage, and one will be able to see how it affected his cognitive functions. Four Lobes for Cognitive Functions

Basically the cerebral cortex is divided into four lobes; because during development of our brain the pressure divides the area into four areas and the development of these lobes do different functions within our brain. The four lobes are known as frontal lobe, temporal lobe, parietal lobe and the occipital lobe (Pinel, 2009). One's occipital lobe is what gives him or her visual input and helps guide their behavior, the occipital cortex with " large areas of an adjacent cortex perform this cognitive function" (Pinel, 2009, p. 69).

In, the parietal lobe it has two large functional areas, the post central gyrus function, which it analyzes sensations one can feel from his or her body, such

as touch. In the posterior section of the parietal lobes has the role of “ perceiving the location of both objects and our own bodies and in directing our attention” (Pinel, 2009, p. 69). The cortex of one’s temporal lobes, which has three functional areas. For one’s language and hearing there is the superior temporal gyrus, the inferior temporal cortex identifies ones complex visual patterns, next is the medial ortian of the temporal cortex its cognitive function is for memory. The last of the four lobes is the frontal lobe, and it has two distinct functioning areas. The first area is the pre-central gyrus along with the adjacent frontal cortex have a motor function, and the “ frontal cortex anterior to motor cortex performs complex cognitive functions” (Pinel, 2009, p. 69), such as assessing the outcomes of possible patterns of behavior, preparation to reply with sequences, and assessing the signifince of the behavior of others (Pinel, 2009).

Summary of what each lobe does •Occipital lobe for vision processing •Parietal lobe for movement, perception to stimuli, recognition, orientation. •Temporal lobe for perception and recognition of auditory stimuli, speech, and memory. •Frontal is for reasoning, parts of speech, movement, planning, problem-solving, and emotions (Brain Structures and their Functions, 2005) Phineas Gage (1823-1860)

Phineas Gage is a good example to use when explaining what happens to a person who receives brain damage and how the damage can affect ones cognitive functions. At the age of 25 a young man’s life changed completely, Phineas Gage was a hard worker as well as the a supervisor for the crew he worked with, his or her job was to blast huge rocks to make the land ready for the railroad track in 1848. His job consist of using a tampering iron on the

boulders that had gun power or dynamite in them to explode, accidents do happen, and Phineas Gage received a tampering iron exploded into his face.

It was remarkable that he was alive as well as being able to walk three miles to find medical help. Thedoctorcleaned him up with amazement that he lived through this damage to his brain. From the doctors report the tampering iron made entry in the cranium and passed through the anterior left lobe, and made its exit in the medial line, along his sinus fracturing his frontal and parietal bones widely, substantial parts of the brain broken up and his left eye globe was protruding out the socket, within a half of a diameter (Mo, 2006).

After this terrible accident according to (Mo, 2006), Phineas Gage retained full possession of his reason, but Gages wife, family, and friends began to see dramatic changes happening to him and hispersonality. Even the company he worked for tried to rehire him, but they could not because his behavior changed, he was mouthy, unpredictable, disrespectful, and grossest profanities. These was not Phineas Gage’s behavior before the tampering iron went through his brain and rearrange his cognitive function from his anterior left lobe (Mo, 2006).

Which is located in the frontal lobe, and it is for reasoning, parts of speech, movement, planning, problem-solving, and emotions (Brain Structures and their Functions, 2005). This was not the Phenias Gage they knew; in fact anyone that knew Gage before states there is a drastic change to his mind. As a result of Phineas damage from his frontal cortex there was a complete loss of social inhibitions, and inappropriate behavior (Mo, 2006). To this day “

the role of the frontal cortex is involved in personality changes and social cognition” (Mo, 2006, p.) Phenias Gage lived a different life as a stable person, at a place where he was not known, presumably somewhere in Chile and live 13 more years. This shows that when one’s brain has damage that they can live through it, but as a different person. Ones cognitive functions can become altered by brain damage within their lobes in their brain. Phineas Gage he seemed to turn from a good natured person to a bad natured person, does that mean a bad natured person can become altered to a good natured person?