

Phineas Gage's Impact On Psychology

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Phineas Gage, Personal History, and the Famous Brain Injury

Gage was the first child of Hannah Trussell and Jesse Eaton Gage, who lived in New Hampshire in the County of Grafton. He had four siblings. There is very little information provided about his education and the way he was brought up. Gage started working with explosives on farms when he was a youth, and he could also work the nearby Quarries and mines. He is well known for participating in the construction of the Hudson River Railroad, which is located near Cortland in New York. He continued working in cities of construction, and by the time he succumbed to the accident, he was an independent contractor in the projects of railway construction (Griggs 2015). His injuries were severe such that no one believed that he would recover. His family was very much afraid, and this made them prepare his coffin while he was still alive due to fear. Fortunately, Gage recovered and apparently started leading a normal life by January 1849.

The accident happened on 13th September 1848 while he was working. His work was to direct a group of workers in crushing the rocks while he prepared a roadbed that was going to be used at Rutland and Burlington Railroad. The incident took place the moment his attention was interrupted by workers who were behind him. This made him look behind over his right shoulder, aligning his head unintentionally with the blast hole. As he opened his mouth to speak, the iron that was being compressed ignited the rock, making the powder explode. This happened definitely since the sand had already been removed. The iron that exploded entered Gage's jaw and moved towards the upper direction, in front of the angle of the lower jaw. There was a high chance of the cheekbone being fractured since the iron moved outside through the upper jaw. The iron passed behind the left eye, and then through the left side of the brain, and finally moved out of the upper side of the skull via the frontal bone.

There were various changes in Gage's personality of Gage that took place after the accident due to the injuries incurred. One of them is the change in which he lost consciousness. This made him behave inappropriately when it came to social situations. There are reports that state that he became violent and found it difficult to control himself. He also started abusing innocent children since he was out of his mind.

Personality Change, Social Conduct, and Frontal-Lobe Damage

There was also a significant change in the way he interacted and associated with other workers. He was known to be responsible and hardworking, and he was also the best leader of the men he was in charge of. All this changed the moment he was involved in the accident, and he could do things completely differently. This made his employers avoid working with him due to the changes he had undergone, which resulted from brain injuries. He was no longer a reliable person, and his consistency at work greatly affected him negatively.

The injuries incurred by Gage enabled the scientists to have a better understanding of the brain. For instance, his frontal Cortex was damaged by the iron rods, making him lose his consciousness/loss of social inhibitions. This made the scientists understand clearly the role of the frontal cortex when it comes to decision-making and social interactions with other people. His injury was used as evidence in the 19th century to prove that the personality and behavior of an individual are greatly controlled by the frontal cortex.

His accident was also used to support the theories and projects of other scientists. For instance, during the time of David Ferrier, one of the pioneer researchers, who was neurology from Scott, had carried out thorough experimental research on the function of the cerebral. In 1878, while he was carrying out a lecture to the Royal College of Physicians, he realized that the damage of frontal cortices appeared to have no effect on the physical ability of an animal, but then there was alliteration which could be noted in the behavior and character of an animal. All these claims were supported by the incident of Gage's accident (Bechara 2016).

Scientific Reconstruction and Gage's Contribution to Neuropsychology

Gage's skull was also used by scientists in identifying areas in the brain that were greatly damaged. A digital model was also created to trace the rod path. This model revealed that the damage had affected a greater portion of the brain and was also more severe than the estimation that was made earlier. In the frontal lobe, nearly 11% of the white matter and 4% of the cerebral cortex were destroyed (Logue & Gould 2014). The model also indicated that the connection that exists between the limbic system and the frontal cortex had been destroyed, which affected the regulation of emotions. This was evident with the change in the way Gage behaved.

In the 19th century, the survival of Gage after being involved in a deadly accident was unbelievable. This fascinated the scientific researchers and encouraged them to do more research to learn more about the brain (Puri, 2017). They became curious to know how he managed to recover despite the

severe injuries, which made many people believe that he would die immediately. They were also encouraged to learn more about the brain so that they could understand parts of the brain that could lead to death in case of any injuries and how various parts of the brain affect the personality of an individual.

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