**Phineas Gage:**
A Gruesome but True Story About Brain Science

**CONCEPT ANALYSIS**

**Text**

*Phineas Gage: A Gruesome but True Story About Brain Science* by John Fleischmann  
Boston: Houghton Mifflin, 2002

**Summary**

*Phineas Gage* is a non-fiction narrative account of a man (named Phineas Gage) who had a metal pole fly through his head and lived to tell the tale. In 1848, when Phineas was 26 years old, he was working on the construction of a railroad in Vermont. One day, because of a small explosion, a big iron “tamping iron”—a three-foot, seven-inch metal pole—flew through the air and straight into and out of Phineas’s head.

Phineas, conscious and aware through the whole thing, was rushed to the town physician. Chatting happily, he insisted on telling the story himself to Dr. Harlow, who rushes to treat him the best he knows how. Medical doctors at that time had very different training than they do today, and Dr. Harlow just did the best he could by trying to stop the bleeding and putting the piece of skull back in place. This starts out the story of a man who probably

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shouldn’t have lived through what he did, and how the injury actually changed him into a different man.

Phineas was later taken to Boston for study, although doctors didn’t have the tools they do now, so there was only so much they could learn from him. He was a pleasant man before his accident, but because of the damage to his frontal lobe, Phineas’s personality changed and he became a man who was hard to get along with. He worked a few jobs, joined Barnum’s freak show, and then went to South America to drive a stagecoach. Eleven years after his accident, Phineas made his way to San Francisco, where his family had relocated; he had a hard time holding a steady job there before a repeated onset of seizures eventually took his life. His skull and tamping iron are on display at Harvard Medical School today.

Organizational Patterns

Fleischmann writes Phineas’s story as non-fiction, yet in a captivating, style. A lot of medical terminology and explanations are included. The book focuses as much on the study of brains as it is about Phineas himself. In fact, it could be argued that the book is really a story about what Phineas’s odd situation did for the study of the brain. Interwoven with Phineas’s story is medical history, such as types of treatments that were known at the time, theories on the brain that were later proven wrong, what we currently know about how the brain functions, and even pictures of doctors dressed up in the fancy suits they used to wear. Phineas Gage is only 75 pages—86 including the glossary and index.

The Big Question

How do you get through hard times? Phineas was not expecting his brain injury to occur, just like other people don’t ask for injuries or tragedies in their lives. Phineas—with his changed personality—made the best of his bad situation. Instead of just sitting at home, miserable, he found ways to work and ended up traveling to South America! He didn’t live a long time after his accident, but he did live his life to the fullest during that time. Fleischman highlights this theme on the last page of the book:

“This is what I think: Phineas Gage was lucky. His accident was terrible. It changed him into someone else, and yet Phineas figured out how to live as that new person for eleven years. He was limited in ways that are important to all human beings, but he found a way to live, working with horses. He took care of himself. He saw the world. He died with his family around him, the only people who knew both the old and new Phineas. And he drove a six-horse stagecoach. I bet Phineas Gage drove fast” (75).
Everyone has their own battles and struggles in life. What is important is how we learn to deal with them.

**Background Knowledge**

In order to really understand this book, students will need a basic knowledge of medical science and the study of the brain. An understanding of medical care at the time (or lack thereof) will dramatically increase students’ ability to understand how remarkable it is that Phineas survived the accident and to understand how far medicine has come (for example, in the past, patients were often treated with leeches); many of us truly take today's medicine for granted. Students should also have some background knowledge of building railroads and circus freak shows to be able to visualize parts of Phineas’s story. See the end of this analysis for resources to help give students this background knowledge.

**Issues Related to the Study of Literature**

**Themes**

**Science and medicine:** Science and medicine have come leaps and bounds over the past few centuries. New inventions in technology, such as microscopes, MRI, and other equipment, have allowed scientists to learn much more about how our brains and bodies work. However, we still don’t know everything, and there is a lot to learn.

**Mental health, personality disorders, and brain damage:** After Phineas’s brain injury, his personality remains forever altered. He has a hard time interacting with people and making decisions. People with brain injuries and disabilities may struggle with concepts and tasks that most people find easy—it is not their fault that their brain isn’t functioning properly.

**Getting through hard times:** We can’t choose what life throws at us, but we can choose how we react to it. See “The Big Question.”

**Setting**

Phineas Gage is set in the mid 1800s in New England, South America, and San Francisco. Phineas’s story starts just outside of Cavendish, Vermont, where men are working to build a railroad through Vermont’s Green Mountains (2). After his injury, Phineas joins the P.T. Barnum’s American Museum on Broadway in New York City—a freak show (43). After
returning home to New Hampshire briefly, Phineas then heads off to Chile, driving the “primitive roads between Valparaiso and Santiago” (47). Phineas’s journey ends at his family’s new home in San Francisco. Other settings include hospitals, science labs, medical conferences, and inside the brain itself.

**Point of View**

This story is told from a third-person narration. Since it is non-fiction, the story of Phineas Gage is interwoven with information about medicine and brains. The narrator is often funny, in a tongue-in-cheek sort of way: “When he was an old man, Dr. Henry J. Bigelow wore a long beard and sober clothes, befitting one of Boston’s senior surgeons. But when he was a young man studying medicine in Paris, Bigelow was a snappy dresser” (a picture caption on page 20).

**Characterization**

**Phineas Gage:** “Phineas is twenty-six years old, unmarried, and five feet, six inches tall, short for our time but about average for his” (1). Before the accident he is described as being “good with his hands and good with men” (2), but his brain injury causes a major personality shift. Although he recovers physically, he becomes “unreliable and, at times, downright nasty” (20). He loses his friends, goes to Boston to be studied by doctors, joins a circus freak show, works as a stagecoach driver in Chile, and then shows up in San Francisco at his family’s new home. He then begins suffering from epileptic seizures, and finally passes away in 1860 from hypothermia due to his seizures (52).

**Dr. Harlow:** Dr. John Martyn Harlow is the regular physician of the town of Cavendish, Vermont. He cares for Phineas after his accident. He was trained in the “best medical theories of his day,” such as diagnosing imbalances of bodily humors (17). Knowing that, even though Phineas seems healed, his personality has changed for the worst, a fact he keeps quiet until he hears of Phineas’s death. He keeps informed about Phineas Gage through Phineas’s mother, and then loses touch when she moves to San Francisco. He tracks her down a couple years after Phineas’s death and requests that Phineas’s body be given to science. Mrs. Gage agrees (59). Dr. Harlow presents Phineas’s skull and the tamping iron to the Massachusetts Medical Society in 1868 (59).
The tamping iron: A tamping iron was used building railroads to set explosives. Thie tamping iron that went through Phineas’s skull was a tapered iron rod that was three feet, seven inches long and weighed thirteen and a half pounds. It looked like “an iron spear” (3). After the tamping iron went through his head, Phineas became very attached to it. The iron became “his constant companion during the remainder of his life” (56). It was on display outside the dean’s office at Harvard Medical School for 150 years, and it now rests in the Countway Library of Medicine (73).

The medical community: The medical community as a whole is a large character in Phineas Gage. From learning about the “humors” and bleeding to current brain science and understanding today, what scientists and doctors understand about the brain is a very big part of the book.

The brain: The brain is described and explained in great detail, along with illustrations. Phineas Gage teaches about what scientists used to think the brain was like—localizers vs. phrenologists (38) and what scientists understand today.

Literary Terms

This book is probably most suitable for a seventh or eighth grade audience. One can focus on requirements found in the new Common Core State Standards for Informational Text (found at http://www.corestandards.org/the-standards/english-language-arts-standards/). Some literary terms that fall in this category include the following:

Purpose: Phineas Gage could serve as a way for students to become more familiar with informational texts. This type of non-fiction has the purpose of informing readers of Phineas’s story and the science of the brain, but it is also written in a way to entertain the reader. It should serve as a vehicle for both efferent and aesthetic reading.

Point of view: Fleischman’s third person point of view greatly impacts the way Phineas’s story is told. This would be a much different book if it were written as historical fiction, from Phineas’s point of view. For example, looking back on the past, Fleischman is able to write about past and current understandings of neuroscience; he wouldn’t be able to write about what neuroscientists currently know if he were writing from the past.

Structure and formatting: The structure and formatting of Phineas Gage is very important to the way the text is read. There are a lot of pictures and diagrams that help explain the
brain science that is detailed in the book. Captions on the pictures make the pictures more valuable to the reader as well.

**Setting:** Phineas encounters many settings that may be unfamiliar to students, such as a railroad construction site, a circus freak show, and stagecoach driving in South America. Medical settings of the past will also be unfamiliar. It may be valuable to discuss the importance of setting with students.

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**Affective Issues Related to the Work**

Initially, it may be hard for students to relate to this book. Phineas had such a freak accident happen to him that most students will have no connection to, and the science information may be very foreign. The only characters in this book are adults—there are no young adults or teenagers. However, focusing on accidents and people with disabilities will broaden the issues that Phineas Gage deals with, which will help more students relate. Also, focus on the big question or main idea, “how do you get through hard times” will help students make the story more applicable. See text sets for more-recent brain stories.

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**Vocabulary Issues**

Students will struggle with the vocabulary in *Phineas Gage*, even if they are older than seventh or eighth grade. There is a large amount of scientific and medical terminology, but fortunately, a glossary in the back of the book serves as a great reference for students and teacher (76–79). It may be helpful to scaffold by going over some basic medical terminology with students, so they don’t feel like they are reading in a foreign language. Some words to focus on include the following:

- sterile (15)
- constitution (15)
- eyewitness (22)
- anatomy (27)
- cortex (27)
- hemispheres (29)
- neuron (30)
- coach (47)
- epileptic seizure (50)

See the separate vocabulary instructional routine for more ideas and more vocabulary words.

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Implications for Students of Diversity

This story is mostly just about a white male and his white male doctor—there is not a lot of diversity. However, there is a lot of opportunity for extreme diversity to be brought up when talking about Barnum’s freak show that Phineas was a part of for a time. Also, the subject of brain injuries has great potential for discussing struggles that people with disabilities face.

Gender Issues

For the most part, Phineas Gage only features male characters (except for Phineas’s mother, who is mentioned on a few occasions). There is potential for good discussion with linked texts on the history of women in science and medicine.

Research Issues/Project Ideas

“Prescription for Phineas”: Have students pretend they are Dr. Harlow and Phineas has just been injured by the tamping iron; they have a dream where they see Phineas’s future. Have them write a “prescription” or doctor’s letter to Phineas, giving him advice on how to deal with the hard times ahead. For more information, see “Prescription for Phineas” after reading strategy.

This I Believe: For many students, the story of Phineas Gage may seem old-fashioned and very far away from anything they know in their own life. To help students realize that many people suffer from brain injuries today, have students read some of the This I Believe essays that are written by people struggling with brain injuries or disease or who have loved ones struggling. Then, have students write their own This I Believe essays.

Phrenology: Using the information about phrenology and the map found on page 36, have students create their own phrenology “brain maps.” Have students be creative and pick categories to go in the map that are most relevant to their own lives (for example, “music” or “animals”).

Non-fiction Narrative: Have students take a stab at the non-fiction narrative genre. Have them pick a famous person from history, and using research, write a short narrative, trying to keep it as factual as possible but still using narrative techniques.
Text Sets and Enrichment Resources

Brains and neuroscience
- What chocolate does to the brain: [http://faculty.washington.edu/chudler/choco.html](http://faculty.washington.edu/chudler/choco.html)
- Neuroscience for kids: [http://faculty.washington.edu/chudler/introb.html#bb](http://faculty.washington.edu/chudler/introb.html#bb)
- Info for kids on the right and left sides of the brain: [http://faculty.washington.edu/chudler/split.html](http://faculty.washington.edu/chudler/split.html)

Narratives
- *The Graduation of Jake Moon* by Barbara Park (about Alzheimers)
- *Back Home* by Julia Kellar (about a veteran dad with a brain injury)

News articles
- [http://esciencenews.com/articles/2012/03/05/new.high.definition.fiber.tracking.reveals.damage.caused.traumatic.brain.injury.pitt.team.finds](http://esciencenews.com/articles/2012/03/05/new.high.definition.fiber.tracking.reveals.damage.caused.traumatic.brain.injury.pitt.team.finds)
- [http://www.personal-injury-infirmery.net/weird-accidents-injuries.htm](http://www.personal-injury-infirmery.net/weird-accidents-injuries.htm)

Circus freak shows

This I Believe essays on brains
- “This I Believe” (about brain cancer) by Bonnie [http://thisibelieve.org/essay/69196/](http://thisibelieve.org/essay/69196/)

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• “This I Believe” (about studying neuroscience and his mother’s experience with depression) by Rudy http://thisibelieve.org/essay/3677/
• “I Believe in My Wife’s Brain” by Gabriel http://thisibelieve.org/essay/58589/

Works Cited


Image: Principal fissures and lobes of the cerebrum viewed laterally. Figure 728 from Gray’s Anatomy. http://en.wikipedia.org/wiki/File:Gray728.svg#filehistory

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