THE ANALYSIS OF NEUROLOGICAL AND PSYCHOLOGICAL CONCEPTS OF ‘’1984’’ BY GEORGE ORWELL

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Abstract. *This article explores the relationship between governance and human brain function through the combined lens of neuroscience and Nineteen Eighty-Four by George Orwell. It examines how continuous stress, fear, and information control can influence cognitive processes, particularly in the prefrontal cortex and amygdala. The study highlights how chronic stress weakens rational thinking and decision-making while increasing emotional reactivity. Additionally, the concept of Newspeak is analysed to demonstrate how limiting vocabulary reduces cognitive complexity, self-expression, and social interaction. Relying on neuroscientific research, the article argues that external control systems can indirectly shape internal brain functions over time. The findings emphasize the importance of preserving cognitive autonomy and linguistic richness in maintaining independent thought and healthy brain function.*

Key words: *Nineteen Eighty-Four, Prefrontal Cortex, Amygdala, Stress and Fear Neuroplasticity, Language Limitation, Cognitive Impairment.*

Connection between Orwellian Idea and Brain Science

The response of the brain for the strict rules has been long explained, most notably in *1984* by George Orwell, where managing and controlling psychologically reshape personal thought. Modern neuroscience suggests that long term stress, fear, and information control can alter brain function, particularly in regions responsible for decision-making and autonomy [1]. Research in cognitive neuroscience shows that the brain is not fixed; it adapts to everyday conditions, including political and social ones [1]. This means political systems may slowly affect people`s thinking abilities.

The Prefrontal Cortex and Cognitive Control

The prefrontal cortex (PFC) plays a central role in different functions such as reasoning, decision-making, and impulse control [1]. Studies in neuroscience consistently demonstrate that the PFC is highly sensitive to environmental stressors and social conditioning [2]. When people live in fear or under strict control, the function of the PFC becomes weaker, and they lose the ability to think critically and make independent decisions [1]. This suggests that long-term political environments may not just influence opinions but may also shape the neurological basis of thought itself. Specifically in the context of "1984", Doublethink is the Party's tool for helping the thrive of cognitive dissonance. Citizens are forced to accept contradictions—"War is Peace," "Freedom is Slavery," "Ignorance is Strength"—as truths. This constant mental activity stops logical error detection, leading to illogical thinking. This process results in "cognitive depletion." The brain overly focuses on contradictory believes and spends enormous energy for falsification of truth, leaving little capacity for deep analysis or independent thought. Over time, this constant internal conflict can lead to a state of mental exhaustion, where the brain is too exhausted to question or to resist false views. It can be seen in the lines of ‘’Two and Two makes Five’’.

Stress, Fear, and the Amygdala

One of the most common ways of controlling brain work is through stress and fear, a theme vividly illustrated in Nineteen Eighty-Four. In the novel, the **omnipresent** telescreen ensures that citizens are constantly watched and listened to, creating a continuing high pressure. Winston Smith, one of the main plots of the novel, is aware that "there was no way of knowing whether you were being watched at any given moment," which creates continuous uncertainty and fear. From a neuroscientific perspective, such a long threat activates the amygdala, the brain region responsible for emotional processing and threat detection, causing it to become hyperactive under chronic stress conditions [3]. This constant occasion even appears in life of the people in Oceania by heightened anxiety and stress responses. Research shows that when the amygdala is overactivated, it can stop the functioning of the prefrontal cortex, leading to more reactive and less rational behaviour [4]. This phenomenon, often referred to as an "amygdala hijack," results in individuals relying more on instinct and fear rather than critical analysis [5]. In the novel, Orwell symbolized the telescreen not only as an external but also as neurological controller. These manipulations and political illusions affect even more in upcoming generations in ''1984'', and they were even raised as spy who regulate their parent`s actions.

Language Control and Cognitive Limitation

In Nineteen Eighty-Four, the Party's construction of *Newspeak* demonstrates how limiting vocabulary directly constrains thought. As Syme explains, *"Don't you see that the whole aim of Newspeak is to narrow the range of thought?"* This deliberate reduction is further emphasized when he states, *"In the end we shall make thoughtcrime literally impossible, because there will be no words in which to express it."* The replacement of nuanced terms such as "bad" or "excellent" with simplified forms like "ungood" and "plusgood" eliminates subtle distinctions in meaning. This idea aligns with the Sapir-Whorf Hypothesis, which explains that language shapes cognitive functions. Research

by Lera Boroditsky shows that linguistic structures influence how individuals understand and categorize reality. When vocabulary is restricted, individuals lose the ability to form and articulate complex ideas. Neuroscientific studies indicate that reduced linguistic richness can limit semantic processing and higher-order cognition in the brain, particularly in areas linked to reasoning and abstraction [6]. Thus, the Party's manipulation of language illustrates how controlling vocabulary can systematically reduce cognitive depth and critical engagement.

Vocabulary Loss, Expression, and Social Impairment

The views of linguistic reduction in Nineteen Eighty-Four goes beyond thought into self-expression and social interaction. Syme explains this when he remarks, *"Every year fewer and fewer words, and the range of consciousness always a little smaller."* This shrinking vocabulary directly limits individuals' ability to speak up emotions, question authority, or engage in meaningful dialogue. Research in cognitive psychology supports this connection, showing that vocabulary size is strongly correlated with verbal reasoning, communication skills, and social participation [7]. If a person has limited vocabulary, they may struggle to explain ideas, understand others, and participate in discussions. This leads to social problems. People become less confident, less active in conversations, and less able to question authority [8]. In the novel, this helps the Party maintain control, because people cannot express disagreement or complex thoughts. Language control therefore weakens both personal autonomy and collective intellectual engagement.

Conclusion

The integration of neuroscience and governance shows that control over people can affect to the human brain. Although author - George Orwell – exaggerated these effects in his''1984'' novel, modern research suggests that even small long-term effects on cognition are scientifically impactable. [9].

Understanding these is essential for protecting our cognitive freedom and ensuring that people keep thinking independently in complex social rules.

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