Chapter 9
Enhancing Leadership Education via Brain-Computer Interface

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ABSTRACT

An innovative strategy for strengthening executive development is represented by the incorporation of brain-computer interface (BCI) technology into leadership training. Providing real-time insights into cognitive and emotional states is the focus of this research, which investigates how brain-computer interfaces (BCIs) might be employed to enhance leadership training. Brain-computer interfaces (BCIs) can provide individualized feedback and adaptive learning experiences by collecting neural activity. This enables leaders to gain a better understanding of their strengths and areas in which they may improve. Increased self-awareness, greater decision-making skills, and enhanced emotional regulation are some of the potential benefits that are investigated in this study, which analyzes the potential

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benefits of BCI-enhanced training programs. By conducting empirical research and soliciting input from users, the research investigates the efficacy of brain-computer interfaces (BCIs) in supplementing conventional leadership training approaches.

INTRODUCTION

New and innovative technology is becoming less of a threat to traditional training approaches as the field of leadership development undergoes continuous transformation. As per (He, H. et al.,, 2019) similar state-of-the-art technology called Brain-Computer Interface (BCI) has emerged as a potentially revolutionary tool that could completely rethink how leadership competencies are fostered and enhanced. Brain-computer interfaces (BCIs) enable real-time monitoring and regulation of cognitive and affective states by creating a direct wireless communication (Raja, D. S. S. et al., 2024) link between the brain and external bias shown in figure 1. (Swapna, H. R. et al., 2023) offering fresh perspectives on cognitive processes and facilitating more individualized and successful training interventions, this technological advancement has enormous potential to accelerate leadership training. This technical innovation has great promise because of this promise. (Ahmed, Z. et al., 2020) discussed about the leadership development programs have traditionally depended on conventional techniques like mentoring (Pandey, B. K. et al., 2023a).), workshops, and simulations to develop vital abilities like strategic thinking (Pandey, B. K. et al., 2024a), emotional intelligence, and decision-making (Pandey, B. K. et al., 2023c). However, these approaches often rationalize the perfection needed to customize education to each student's unique cognitive and emotional biographical traits (Muralidhar, L. B. et al., 2024).