Abstract

Balthazard, Pierre (2012). Differentiating transformational and non-transformational leaders on the basis of neurological imaging. The Leadership Quarterly, 23(2). 244-258.

The purpose of this study was to evaluate the viability of using neurological imaging to classify transformational leaders, versus non-transformational leaders, as identified through existing psychometric methods. Specifically, power spectral analysis measures based on electroencephalograms (EEG) were used to develop and validate a discriminant function that can classify individuals according to their transformational leadership behavior. Resting, eyes closed EEG was recorded from 19 scalp locations for 200 civilian and military leaders. We also assessed follower or peer perceptions of transformational leadership through the use of the Multifactor Leadership Questionnaire (MLQ). Our discriminant analysis, which involved a two-step, neural variable reduction and selection process, was 92.5% accurate in its classification of leaders. Patterns in the spectral measures of the brain of leaders, including activity and network dynamic metrics, are discussed as potential correlates of transformational leadership behavior. The current work provides a better understanding of the latent and dynamic neurological mechanisms that may underpin the transformational leadership qualities of individuals.

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