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Analyses of Impression Changes and Frontal Lobe Activity While Viewing Videos

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Abstract

This study investigates the mechanism of emotional processing in the human brain. We analyzed the association between impressions perceived from videos and brain activity in the prefrontal cortex. In particular, we focused on the differences between impressions of videos in the first-time viewing and second time viewing. The participants' brain activities were measured using optical topography equipment that provided near-infrared spectroscopy (NIRS). The experimental results revealed that changes in the perceived impressions were strongly correlated with brain activity in the dorsolateral prefrontal cortex (DLPFC). We discovered that the brain activities in the DLPFC were lower when the impressions of the videos in the first-time viewing were evaluated as "good" by the participants. We also found that brain activities outside the prefrontal cortex were more active in the second time viewing. Our research results on video impressions and brain activities will contribute, in the near future, to the development of, among other areas, brain-machine interfaces, neuromarketing, and affective computing.

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