

UC Merced

Proceedings of the Annual Meeting of the Cognitive Science Society

Title

The reassurance of the Complex Trial Protocol against ecologically validated countermeasures

Permalink

<https://escholarship.org/uc/item/5vz5n6kb>

Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 41(0)

Author

Kim, Hyemin

Publication Date

2019

Peer reviewed

The reassurance of the Complex Trial Protocol against ecologically validated countermeasures

Hyemin Kim

Korea University, Seoul, Korea, Republic of

Abstract

The P300-based Complex Trial Protocol (CTP), developed by Rosenfeld et al. (2008), is known to compensate for accuracy degradation and countermeasure issues of the Concealed Information Test. Although a myriad of CTP studies using electroencephalogram has been investigated, the lack of crime-related details and the complexity of the previously used countermeasures have revealed the necessity of in-depth experiment. In the present study, fifty participants were divided into three groups: guilty, innocent, and guilty-countermeasure. Participants engaged in a mock-crime scenario and only the guilty-countermeasure group performed ecologically validated countermeasures during the CTP. Participants reaction time and the amplitude of P300 components of event-related potential were analyzed and there was a significant difference ($p < 0.05$). Moreover, using the bootstrapping method, participants were correctly classified as guilty or innocent, regardless of the use of countermeasure, with accuracy above 80%. The results support the possibility of the on-site usage of the CTP.