

UC Merced

Proceedings of the Annual Meeting of the Cognitive Science Society

Title

Perceptual Learning with Adaptively-triggered Comparisons

Permalink

<https://escholarship.org/uc/item/5s24v5k8>

Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 37(0)

Authors

Thai, Khanh-Phuong

Krasne, Sally

Kellman, Philip

Publication Date

2015

Peer reviewed

Perceptual Learning with Adaptively-triggered Comparisons

Khanh-Phuong Thai

University of California, Los Angeles

Sally Krasne

University of California, Los Angeles

Philip Kellman

University of California, Los Angeles

Abstract: Recent research has shown that learning technology combining adaptive and perceptual learning (PL) methods can improve pattern recognition, transfer, and fluency in complex learning domains (e.g., Mettler & Kellman, 2014). Both classic research and recent work suggest the benefit of paired comparisons in PL, but no previous work has used adaptive techniques to trigger comparisons. We asked whether PL can be enhanced by adaptively triggered comparison trials, in which erroneous responses led to comparisons designed to distinguish confusable categories. Undergraduates learned to interpret basic patterns from electrocardiograms (ECGs) with either: (1) adaptive PL based on single category exemplars, (2) adaptive PL combined with adaptively triggered comparisons, (3) adaptive PL combined with non-adaptive comparisons. Results showed strong learning in all conditions. Comparison conditions produced the strongest learning gains and showed smaller performance declines over a one-week delay. The results also suggested that adaptively triggered comparisons may enhance training efficiency.