

Perceptual Learning with Adaptively-triggered Comparisons

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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.