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Proceedings of the Annual Meeting of the Cognitive Science Society

Title

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Permalink

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Journal

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

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Publication Date

2019

Peer reviewed

Learning Preferences as an Index of Individual Differences in Cognitive Flexibility

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Abstract

Recent findings suggest that when solving problems involving cognitive flexibility (CF), individuals who approach a learning task using reinforcement learning (RL), outperform those who approach the task using supervised learning (SL). Based on these data, we hypothesized that CF is a function of individual differences in learning preference and task demands. Healthy native English speakers were administered three CF tasks that incorporated (i) shifting, (ii) divergent thinking, or (iii) both shifting and divergent thinking elements. Participants response selection history on a reward-based learning task, which could be approached either through SL or RL, was used to determine each participants learning style and predict CF performance. Results showed that different CF task components (i.e., whether the task involved divergent thinking) interacted with participants learning preferences as measured by the independent learning task. We discuss how learning preferences might capture individual differences in CF.