How to navigate everyday distractions: Leveraging optimal feedback to train attention control

Maria Wirzberger
University of Stuttgart, Stuttgart, Germany

Anastasia Lado
Max Planck Institute for Intelligent Systems, Tuebingen, Germany

Lisa Eckerstorfer
Max Planck Institute for Intelligent Systems, Tbingen, Germany

Ivan Oreshnikov
Max Planck Institute for Intelligent Systems, Tbingen, Germany

Jean-Claude Passy
Max Planck Institute for Intelligent Systems, Tbingen, Germany

Adrian Stock
Max Planck Institute for Intelligent Systems, Tbingen, Germany

Amitai Shenhav
Brown University, Providence, Rhode Island, United States

Falk Lieder
Max Planck Institute for Intelligent Systems, Tbingen, Germany

Abstract

To stay focused on their chosen tasks, people have to inhibit distractions. The underlying attention control skills can improve through reinforcement learning, which can be accelerated by giving feedback. We applied the theory of metacognitive reinforcement learning to develop a training app that gives people optimal feedback on their attention control while they are working or studying. In an eight-day field experiment with 99 participants, we investigated the effect of this training on peoples productivity, sustained attention, and self-control. Compared to a control condition without feedback, we found that participants receiving optimal feedback learned to focus increasingly better (f = .08, p ¡ .01) and achieved higher productivity scores (f = .19, p ¡ .01) during the training. In addition, they evaluated their productivity more accurately (r = .12, p ¡.01). However, due to asymmetric attrition problems, these findings need to be taken with a grain of salt.