
How the richness of one's environment influences decisions to invest resources

Renee Koolschijn^{*1}, Fleur E. N. Smilde¹, and Hanneke E. M. Den Ouden¹

¹Donders Institute for Brain, Cognition, and Behaviour, Radboud University, Nijmegen, The Netherlands – Pays-Bas

Résumé

Making decisions not only involves a choice between different options or courses of action, but also a meta-level decision of how much of one's (often limited) resources to invest into the decision-making process. For instance, it may be optimal to spend less (e.g. cognitive or physical) resources to obtain a reward in an environment where opportunities for reward are plentiful, and save them for when opportunities are scarce.

In this set of behavioural experiments, we investigated the environmental factors that influence human decisions to invest resources in order to obtain reward. We developed a novel naturalistic decision-making task, in which participants were tasked to vary their investments of a limited resource according to stimuli which varied in reward magnitude (benefits) and required investment (costs).

Two groups of healthy participants (n=30 each) varied their investments according to the stimulus-associated expected value (EV, defined as the ratio of reward/required investment), as well as the recent richness of the environment: if the recent EV was high, participants overall invested less, whilst they invested more when recent EV ratio had been low. Furthermore, participants increased their investments during periods when the inter-trial interval (ITI) was long, i.e. when opportunity for reward was relatively scarce. These findings suggest that humans evaluate the recent richness of the environment when making decisions on how much of their resources to invest in an opportunity.

*Intervenant