



**University of
Zurich** ^{UZH}

Department of Economics – Neuroeconomics Seminar

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Metacognition for flexible learning and decision-making

Many factors can influence how well we do in our daily lives, internal factors such as our own knowledge of the right actions to take, or our motivation and resultant effort investment, as well as external factors, such as the stability and controllability of the environment we make decisions in. Understanding the causes of our outcomes is essential for adapting beliefs, actions, and resource allocation to optimize long term fitness. A challenge to adapting successfully are the sparseness and ambiguity of feedback that characterize most real-live situations: we may learn whether we failed or succeeded, perhaps how well or poorly we did, but not why. Instead, the extent to which external and internal factors determine our outcomes need to be inferred to then guide decision-making about actions or effort. I have proposed that metacognition acts as a mechanism to adaptively reduce uncertainty and aid flexible learning and decision-making. Here I review foundational experimental, computational and neuroscience work investigating this hypothesis, and offer a preview of preliminary work extending these findings to changing environments and effort decisions.