

**Title:** Imitation and emulation during human observational learning

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**Abstract:** In order to navigate our social world, it is crucial for people to learn from others. Here we aim to investigate the neural computations underlying two strategies that people may implement when learning from observing others: action imitation, which relies on encoding a prediction error between the expected and actual actions of other agents, and social inference or emulation, where one learns by inferring the goals and intentions of others. Specifically, participants underwent fMRI while learning to identify valuable tokens in order to win money by choosing between explicit slot machines after observing the choices of another agent. Computational models were fit to participants' behavioral data to examine (i) which observational learning strategy they rely on, (ii) whether there is evidence for an arbitration mechanism between imitation and emulation, and (iii) whether such arbitration varies with changes in volatility and/or entropy in the environment, as well as across individuals. Future work will investigate how these computations are implemented in the human brain.