

Plasticity of spatial learning strategies in the common cuttlefish

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Abstract Several studies have demonstrated that mammals, birds, fishes and insects use comparable spatial learning strategies. Unfortunately, few studies have investigated spatial learning mechanisms in marine invertebrates. Our study aimed to identify the strategies used by a cephalopod (*Sepia officinalis*) to solve a spatial task. A new spatial learning procedure using a T-maze was designed. In this maze, a cuttlefish learns to enter a dark and sandy compartment. By providing different

visual cues (proximal or distal ones) to the cuttlefish, we demonstrated in our experiments that their strategies to solve the maze seem to be sex- and age-dependent. Our study demonstrates for the first time the presence of multiple spatial learning strategies in cuttlefish that appear to be closely related to those previously described in vertebrates.

Keywords Spatial strategy • T-maze • Cephalopods

