Grid-Navigation Tasks involve Skill Learning

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Abstract

Several canonical experimental paradigms (serial reaction task, mxn task, etc.) have been proposed to study the typical behavioural phenomenon in sequential key-press tasks. However, not much work has been done on studying motor sequencing in grid-navigation tasks. In this work, using empirical examinations, we systematically show grid-navigation task as an instance of skill learning paradigm. The participants performed Grid-Sailing Task (GST), which required navigating (by executing sequential key-presses) a 5x5 grid from start to goal position while using a particular key-mapping among the 3 cursor movement directions and the 3 keyboard buttons. We employ two different experiments to argue for the learning of cognitive strategies as well as motor sequences. By rejecting the motor adaptation argument and validating the law of practice, we characterize GST as a skill learning task. We further argue for advantages of GST as a general, canonical task over others for use in skill learning studies.