

The pitfalls of being a copycat: Learning the golf putting action through the use of acoustic and visual guidance

Marta Bienkiewicz¹, Laurent Pruvost², Cathy Craig³, Matthew Rodger³,
Stuart Ferguson³, Frank Buloup¹, Lionel Bringoux¹, Christophe Bourdin¹,
Richard Kronland-Martinet²

¹ ISM, Aix-Marseille University & CNRS

² PRISM, Aix-Marseille University & CNRS

³ Queen's University of Belfast

Abstract. Learning a new motor skill requires an individual to perform a number of repetitions of the same movement in order to attain the desired goal and harness the appropriate dynamics. We investigated whether realtime exposure to a movement template conveyed by acoustic or visual display can enhance the acquisition of a new action. We used a golf putting scenario within a controlled lab environment and with a movement template extracted from the recording of a professional golfer. Three groups were tested: control, acoustic and visual. Each group consisted of 10 participants who trained golf putting in two 30 minutes sessions per week (8 sessions in total). Participants were asked to perform the task (20 shots) at three distances: 3m, 6m, 9m. Baseline, transfer and retention tests were taken during separate sessions. The control group performed the task without any external sensory guidance. The acoustic group was exposed to an engineered sound display of angular velocity of the expert. The visual group used a point light visual version of the same pattern. The results of the study revealed subtle differences between groups over the learning process in terms of movement dynamics and success rate of goal attainment. The talk will present in-depth analysis of the spatio-temporal features of the movement skill development across the training sessions. We hope that this work will feed into the developing field currently using sensory guidance to enhance movement performance and raise important questions for future avenues of research.