Leader-follower Dynamics, Agency, and Anxiety in Joint Action Braking: A First-Order Dynamical Systems Model

Devin Gill
University of Utah, Salt Lake City, Utah, United States

Ian Ruginski
University of Utah, Salt Lake City, Utah, United States

Brandon J. Thomas
University of Utah, Salt Lake City, Utah, United States

Abstract

Joint actions require successful coordination between two or more individuals toward shared goals. Successful motor performance can be influenced by agency and anxiety; however, these factors could also serve as regulation mechanisms that enhance coordination in joint action tasks. The current experiment assessed the influence of anxiety and sense of agency on the dynamics of action coordination between two people during a car-braking task. Both individuals were required to contribute toward the braking task to avoid crashing into a stop sign. Using an actor partner interdependence model (APIM), results suggested that individuals seated to the right decreased their contribution to braking after individuals seated on the left increased their braking, but the reciprocal relation was not present. Visual feedback appears to influence action coordination, however no differences in reported anxiety or agency were found. This leader-follower effect suggests that a driver-passenger dynamic might have emerged.