Editorial Introduction: Education is a Dynamical System

Dimitrios Stamovlasis and Matthijs Koopmans, Guest Editors

Nonlinear Change and the Black Box Problem in Educational Research

Matthijs Koopmans

A Nonlinear Dynamical Systems Approach to Real-Time Teacher Behavior: Differences between Teachers

Helena J. M. Pennings, Mieke Brekelmans, Theo Wubbels, Anna C. van der Waart, Luce C. A. Claessens, and Jan van Tartwijk


Go Tani, Umberto Cesar Corrêa, Luciano Basso, Rodolfo Novellino Benda, Herbert Ugrinowitsch, and Koji Choshi

Ought-Approach versus Ought-Avoidance: Nonlinear Effects on Arousal under Achievement Situations

Dimitrios Stamovlasis and Georgios D. Sideridis

A Dynamic Nonlinear Model for Educational Systems: A Simulation Study for Primary Education

Porfirio Guevara, Luis López, Alfred Posch, and Roy Zúñiga

The Fractal Clock: Using Chaos to Bridge the Art-Science Divide

R. Downing and R. P. Taylor

Cover art: “The Fractal Clock” by R. Downing