

Simulating the cost of cooperation: A recipe for collaborative problem solving

Alessandro Lazzeri

University of Pisa

Andrea Guazzini

University of Florence

Daniele Vilone

CNR - Italy

Giorgio Gronchi

University of Florence

Abstract: Crowdsourcing consists in engaging a community of people in solving complex problems. Collaborative problem solving is affected by many variables (e.g., group size, difficulty of the task, tendency to cooperate) in a complex way. In this study, we extend the results of Guazzini et al. (2015) by means of a numerical simulation exploring the impact of the cost of cooperation in collaborative problem solving. We observed that the cooperation costs have damaging effect with smaller groups that face hard problems. When groups fail to solve the problem there is a long-term reduction in fitness (since the group is not able to learn) as well as a short-term loss of a payoff. So, when facing small group and hard task in concrete application, it is better to control the cooperation costs with ad hoc interventions.