

Does social/cultural learning increase human adaptability?
Rogers' question revisited

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It is often taken for granted that social/cultural learning increases human adaptability, because it allows us to acquire useful information without costly individual learning by trial and error. Rogers (1988) challenged this common view by a simple analytic model. Assuming a “cultural” population composed of individual learners engaging in costly information search and imitators who just copy another member’s behavior, Rogers showed that mean fitness of such a mixed “cultural” population at the evolutionary equilibrium is exactly identical to the mean fitness of an “acultural” population consisting only of individual learners. Rogers’s result implies that no special adaptive advantage accrues from social/cultural learning. We revisited this counter-intuitive argument through use of an experiment with human subjects, and by a series of evolutionary computer simulations that extended Kameda & Nakanishi (2002). The simulation results indicated that, if agents can switch the individual learning and imitation selectively, a “cultural” population indeed outperforms an “acultural” population in mean fitness for a broad range of parameters. An experiment that implemented a non-stationary uncertain environment in a laboratory setting provided empirical support for this thesis. Implications of these findings for cultural capacities and some future directions are discussed.

Key Words: social learning, cultural transmission, cultural capacities, non-stationary uncertain environment, mean fitness, producer-scrounger dilemma