

# REPEATED LEARNING AND CULTURAL EVOLUTION

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## Synonyms

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## Definition

In the context of cultural evolution models, *learning* refers to an individual's acquisition of a specific variant of a cultural trait, such as an idea or a behavior; *repeated learning* refers to a sequence of learning opportunities during which a cultural variant may be acquired at one point only to be replaced by another variant that is acquired later. The possibility of repeated learning distinguishes cultural evolution from genetic evolution (where an individual typically acquires genetic information only once).

## Theoretical Background

Repeated learning has been put forward as a model of cultural evolution that accounts for both memetic and rational aspects of cultural transmission (Strimling, Enquist & Eriksson, 2009). Here, memetics refer to the hypothesis that cultural evolution is the playing field of selfish memes, in the sense that success of cultural traits is determined by their inherent power to spread between human minds – a powerful idea of Richard Dawkins (1975) that potentially explains observations of irrational beliefs and behavior, and consistent with human susceptibility to persuasion and irrelevant stimuli. Rational choice theories, in contrast, assume that individuals are capable of making rational choices among existing cultural alternatives and hence that seemingly irrational elements of culture have rational explanations (e.g., Stark & Bainbridge, 1987). The repeated learning model attempts to reconcile these perspectives by describing cultural elements along two dimensions: their spontaneous appeal ("persuasiveness" or "diffusion potential") and their ability to stand up in competition with other cultural variants that an individual has opportunities to acquire ("stickiness" or "retention potential"). When an individual learns a cultural trait for the first time only the diffusion potential matters, but over repeated learning opportunities the importance of the retention potential increases. In other words, over an individual's lifetime his or her repertoire of cultural elements will tend to exhibit an increasing share of sticky variants. A cultural variant may be sticky because the individual is happy with it (e.g., if it serves its purpose well) or simply because it is addictive.

## Important Scientific Research and Open Questions

The model of how cultural evolution depends on repeated learning was introduced in order to study whether cultural evolution between many generations can be predicted by some success index analogous to fitness in biology (Strimling, Enquist & Eriksson, 2009). The main finding was that repeated learning makes such a predictor impossible in general, because success may be intransitive in the sense that one cultural variant successfully competes with a second variant, but only the second variant competes successfully with a third variant. This phenomenon arises directly from the assumption that repeated learning gives a role to both "persuasiveness" and "stickiness" of cultural elements. An important open question is how these theoretical constructs can be empirically validated. Strimling et al point to cognitive research on religion that experimentally measures how notions about supernatural entities differ in how easily they are transmitted and

recalled in memory (e.g., Boyer & Ramble, 2001) and suggest that this avenue of research could be extended to repeated learning by experimentally measuring the impact a currently held cultural trait has on the cultural traits an individual will adopt in the future.

## Cross-References

- Learning and evolutionary game theory
- Social learning
- Stochastic models of learning

## References

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- Strimling, P., Enquist, M., & Eriksson, K. (2009). Repeated Learning Makes Cultural Evolution Unique. *Proceeding of the National Academy of Sciences* 106, 13870-13874.