

# Review of: "Modeling the structure and evolution of cultural information as Quasispecies"

Joe Belizario

**Potential competing interests:** No potential competing interests to declare.

In his book "The Selfish Gene", Richard Dawkins introduced the concept of memes as replicator units similar to genes. According to his theory, cultural evolution is based on human's ability to memorize and replicate information through imitation, which allows memes to propagate and perpetuate themselves in the population. The success of a meme is determined by its capacity to reproduce and transmit its characteristics to the population, similarly to genes. Cultural information can be modeled in the same manner as biological information, and when a meme is transmitted, it may undergo variations due to replication errors or adaptations to become more attractive or efficient. Memologists or memeticists study the selective sources that act on memes during evolution. David Stevenson investigated how error-prone replication and subsequent selection act on linear cultural information modules or units, using different mathematical models to measure error rates in communication from various sources. He derived an equation to measure the transmission and survivability of information and determined the relative fitness of modular sentences as they spread in social networking platforms. The data shows an error frequency in our language's "genome" considerably greater than that seen in biological systems. Stevenson discusses the implications of the quasispecies model he used to quantify the error rate on communication and cultural evolution. In biological organisms, an error-prone repair system is used to fix nucleotide sequence erroneously copied before it can pass down a mutation or a damaged section of molecular code in the DNA molecule. We do not know if we have in our internal cognitive system a similar mechanism of repairing of cultural allelic memes. The study carried out by David Stevenson gives us hope or an equation that will help us to predict and intercept epidemic and toxic memes that may cause misinformation and harm the people's cultural health. However, for the success of co-evolution of two types of replicators, genes and memes, it is necessary to develop mind skills for controlling emotional reactions whose nature influences the probability of error replication as illustrated by the evolutionary algorithm.