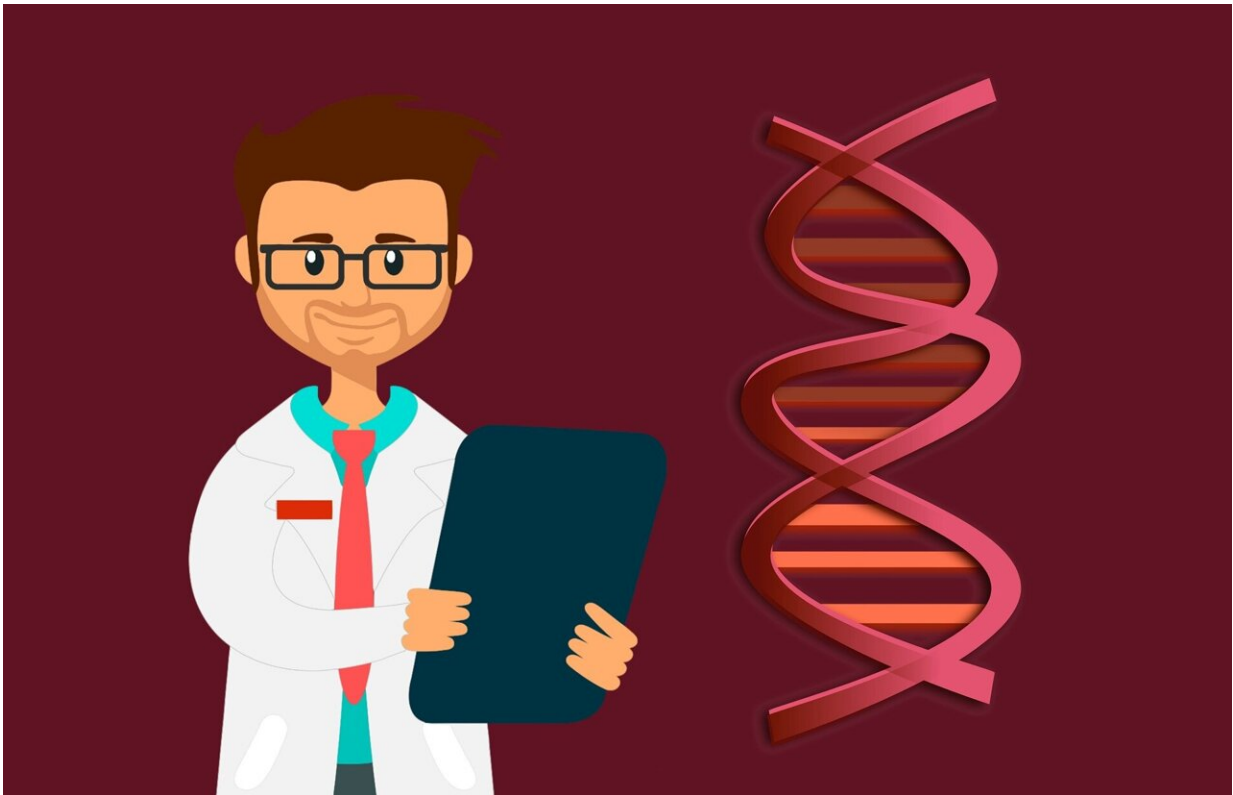


# New framework highlights dual role of genetics and culture in inheritance

July 13 2021

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A new framework which reconciles the roles of behavioral genetics and cultural evolution in inheritance—and cuts through the nature/nurture debate—has been put forward by researchers at the London School of Economics and Political Science (LSE).

The model, which is set out in a forthcoming paper in *Behavioral and Brain Sciences*, uses a dual inheritance approach to predict how [cultural factors](#)—such as [technological innovation](#)—can affect heritability. Heritability is the extent to which variation in a certain phenotypic trait, such as IQ, can be predicted by genetics as opposed to [environmental factors](#) such as access to education.

The new framework highlights how genes and culture are deeply intertwined. For example, humans have jaws too weak and guts too short for a world without controlled fire and cooked food. We lack the genes for fire-making or cooking and instead rely on culture to compensate. Alongside [genetic evolution](#), culture evolves over time in response to ecological, demographic and [social factors](#).

The authors note that when culture overlaps with genes, the impact of genetics on a trait can become masked, unmasked or reversed and the effects of a gene can mistakenly be attributed to the environment or vice versa.

This integrated approach challenges the simple nature/nurture debate and helps resolve controversies in topics such as IQ by revealing that behavioral and cognitive characteristics are reliant on a whole host of evolving interacting factors—both genetic and cultural.

The cultural evolutionary approach also helps explain how factors such as rates of innovation impact heritability across different social contexts, helping resolve issues that arise from a disproportionately WEIRD (western, educated, industrialized, rich and democratic) literature.

Commenting on the new framework, paper co-author Ryutaro Uchiyama from the Department of Psychological and Behavioral Science at LSE says that "since its founding, the field of behavioral genetics has quantified the influence of genes by contrasting it with influence from

the environment, but it has relied on an impoverished conception of the environment. Human environments are dynamically structured by [cultural evolution](#), and this understanding forces us to reassess the statistical and practical meaning of genetic indices like heritability."

Paper co-author Dr. Michael Muthukrishna added that "biological differences don't imply genetic differences—culture is also biological. This new framework allows us to better understand how genes and culture interact to create us. As the paper reveals, high heritability does not mean schools and other aspects of the environment don't matter or that there is anything inevitable about who we are and what we become."

The paper, "Cultural Evolution of Genetic Heritability," has been accepted by the journal *Behavioral and Brain Sciences*. The journal is currently soliciting reactive commentary on the target article from other researchers. The authors will respond to these commentaries in a follow-up article later in the year.

**More information:** Ryutaro Uchiyama et al, Cultural Evolution of Genetic Heritability, *Behavioral and Brain Sciences* (2021). [DOI: 10.1017/S0140525X21000893](#)

Provided by London School of Economics

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