Gene-Environment Interaction in the 21st Century: Its Rise, Its Fall, Its Rise?

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Abstract

Session: The Status and Prospect of Genetic Explanations of Behavior (Maria Kronfeldner, Pierre L. Robertoux, Kenneth F. Schaffner, and James Tabery) At the turn of the 21st, Terrie Moffitt and Avshalom Caspi published a series of papers on gene-environment interaction. These articles were published in premier scientific journals, and the results were hailed in the media. One paper in particular, on the relationship between the serotonin transporter gene and exposure to stress in the development of depression, has been replicated dozens of times and cited over 4000's times. A 2009 meta-analysis of those replications, however, was negative, suggesting that the original result may have just been due to chance. But then a 2011 meta-analysis came back positive, suggesting a confirmation of the original result. A commentary in *Archives of General Psychiatry* (which published the 2011 meta-analysis), worried, "The reader is therefore entitled to ask, 'What should I believe? Which explanation is true?"' I will situate this most recent debate over gene-environment interaction in the longer history of research on the phenomenon. That history reveals that there have been two quite distinct ways to understand interaction in terms of how to conceptualize it, how to investigate it, and how to weigh evidence for it. My thesis for this talk is that these competing understandings are playing out yet again in this 21st century debate over gene-environment interaction.

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