

This is a section of [doi:10.7551/mitpress/14186.001.0001](https://doi.org/10.7551/mitpress/14186.001.0001)

The Science-Music Borderlands

Reckoning with the Past and Imagining the Future

Edited by: Elizabeth H. Margulis, Psyche Loui, Deirdre Loughridge

Citation:

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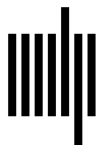
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DOI: 10.7551/mitpress/14186.001.0001

ISBN (electronic): 9780262373043

Publisher: The MIT Press

Published: 2023



The MIT Press

I Beyond Nature vs. Nurture

Volume Editors

It would seem like we're moving past the nature vs. nurture debate. Gene-culture coevolution captures the idea that human cultural practices and lasting changes in human biology interact over evolutionary time (Richerson, Boyd, & Henrich, 2010, as cited in Patel, 2018). Biocultural hypotheses posit that the either-or dichotomy between culture and biology is limiting and inaccurate (van der Schyff & Schiavio, 2017). Before we declare the end of investigations into whether the musical mind is inherited or acquired, however, it behooves us to pause and reflect on whether anything has really changed. As Evelyn Fox Keller observed, "One of the most striking features of the nature-nurture debate is the frequency with which it leads to two apparently contradictory results: the claim that the debate has finally been resolved (i.e., we now know that the answer is neither nature nor nurture, but both), and the debate's refusal to die" (2010, p. 1). We are yet again at risk of declaring the debate resolved, only to see it persist, if we cannot imagine alternatives that speak across the humanities and sciences, to those doing research and those funding it, to specialists and the general public alike.

Why has the nature-nurture debate proved so stubborn? One way to address this question is to examine the disciplinary and institutional structures where the debate remains entrenched, despite persistent efforts to move beyond it. For music psychologists and cognitive scientists, the kinds of findings and claims that have high value are yoked to a larger hierarchy of knowledge. Although a wide range of research questions and methodologies are represented in specialist music cognition journals, the demands of publishing in general-interest scientific journals can push researchers to strive to link music to the biological, with the assumption that being biological means being scientific, objective, and universal and thus resistant to the winds of social and cultural change. Thus, within the institutional structures of science, incentives persist that encourage a stark approach to the relationship between nature and nurture.

On the flip side, it is a veritable taboo in many humanities fields to consider biology a determinant of cultural life or to take an interest in what might be "universal"

to humanity. As Mundy writes (chapter 4), World War II revealed deeply flawed thinking about the relation between biological and cultural evolution, and as a result, music scholars retreated to a focus on the music itself. In chapter 19 of this volume, Feld discusses a heightened suspicion of “universalism” that took root in anthropology and cultural studies in the 1990s, in the context of increasing disciplinary specialization and competition for resources that further polarized the sciences and the humanities. More recently, humanities scholars have targeted human exceptionalism and anthropocentrism as culprits in the planetary climate crisis; this adds a new set of ethical liabilities to discussions of uniquely human capacities (Nayar, 2014; Ochoa Gautier, 2016).

One step forward would be recognizing the pressures that operate on both scientists and humanists to stay in their respective lanes vis-à-vis nature and nurture, as well as the constraining and distorting effects of those pressures. Additional steps require sustained interaction between thinkers in both fields. Keller, for instance, suggests reformulating the nature-nurture question to preserve what people care about knowing, without creating a false dichotomy: “how malleable is a given trait, at a specified developmental age?” (2010, p. 75).

For music research, such paradigm shifts have implications for what counts as a major or meaningful finding and also for the questions that experiments are designed to address. Attempting to isolate innate from learned, for instance, is less important than identifying a broad range of factors and how they interact. As Patel reminds us in chapter 1 of this volume, the value of music doesn’t depend on its evolutionary status. Likewise, the value of research doesn’t depend on falling on one side or the other of the nature-nurture dichotomy.

Three major areas of research that have been shaped by the nature-nurture debate are evolutionary origins, animal musicality, and cross-cultural comparisons. These areas most clearly demonstrate not only the problems of trying to separate nature and nurture but also the new possibilities opened up by alternative framings. The chapters in this section focus on evolutionary origins (Patel, Tomlinson) and animal musicality (Mundy; Duengen, Sarfati, and Ravignani). The topic of cross-cultural comparison is taken up elsewhere in this volume (in particular, see chapters 9, 18, and 19).

Patel and Tomlinson have published extensively on music and evolution: Patel as a neuroscientist whose research centers on music and language and cross-species musicality, and Tomlinson as a humanist whose engagement with differences across history and culture led to work on the emergence of human cultural capacities through evolutionary processes. In their contributions to this volume, they offer complementary voices on the emergence of culture in interaction with biological substrates. Tomlinson proposes that the burgeoning of culture, including behaviors we might call music and

language, shares the same “indexical commons” across species. Patel uses the phrase “purely cultural” to describe capacities for which no neural specializations evolved specifically, while pointing out that “purely cultural” does not mean independent from biology, given that any cognitive capacity still “draws on specific brain regions or pathways and can be influenced by changes to those substrates.”

The chapters by Duengen, Sarfati, and Ravignani and by Mundy address animal studies, showing how animals can help us think through music researchers’ assumptions and how behaviors exhibited throughout the animal kingdom can provide insight into notions of musicality. As Duengen, Sarfati, and Ravignani demonstrate through their survey of the current literature on animal musicality, although testing animals for human musical capacities—especially pitch perception—has been a dominant research practice, it yields limited insight compared with what could be learned by considering a broader range of cognitive capacities and sounds of ecological relevance to various species. Mundy takes up the ethical dimensions of animal research, considering the history shaping that research in order to question its enabling human-animal binary and propose future research directions founded on different premises.

The chapters in this section illustrate a back-and-forth relationship between empirical studies and theoretical models, the latter endeavoring not only to explain the former but also to enable new testable hypotheses. Music provides a domain within which broader philosophical and scientific issues around the relationship between nature and nurture can be theorized and investigated in tractable ways.

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The MIT Press would like to thank the anonymous peer reviewers who provided comments on drafts of this book. The generous work of academic experts is essential for establishing the authority and quality of our publications. We acknowledge with gratitude the contributions of these otherwise uncredited readers.

This book was set in Stone Serif and Stone Sans by Westchester Publishing Services.

Library of Congress Cataloging-in-Publication Data

Names: Margulis, Elizabeth Hellmuth, editor. | Loui, Psyche, editor. | Loughridge, Deirdre, editor.

Title: The science-music borderlands : reckoning with the past and imagining the future / edited by Elizabeth H. Margulis, Psyche Loui, and Deirdre Loughridge.

Description: Cambridge, Massachusetts : The MIT Press, 2023. | Includes bibliographical references and index.

Identifiers: LCCN 2022014716 (print) | LCCN 2022014717 (ebook) | ISBN 9780262047647 (paperback) | ISBN 9780262373036 (epub) | ISBN 9780262373043 (pdf)

Subjects: LCSH: Music—Psychological aspects. | Musical ability. | Cognition. | Neuropsychology.

Classification: LCC ML3830 .S293 2023 (print) | LCC ML3830 (ebook) | DDC 781.1/1—dc23/eng/20220328

LC record available at <https://lcn.loc.gov/2022014716>

LC ebook record available at <https://lcn.loc.gov/2022014717>