

Empirical Musicology: An Interview with David Huron Part II

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ABSTRACT: On the occasion of David Huron's retirement, EMR Editor, Daniel Shanahan, recently interviewed him regarding research methodology, public musicology, music and emotion, formal theory, the place of biology in music studies, and other topics. The second of two interviews.

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ON the occasion of David Huron's retirement, EMR Editor Daniel Shanahan, recently interviewed him regarding research methodology, public musicology, music and emotion, formal theory, the place of biology in music studies, and other topics. What follows is the second of two interviews, the first of which can be found in Shanahan (2020).

METHODOLOGY

Daniel Shanahan (DS): Over the past several years, you've been offering week-long workshops on empirical methods in music research. Could you talk a bit about how this came about, why you decided to open this up to the broader research community, and any takeaways you have from it?

David Huron (DH): I began teaching research methods in music scholarship in 1998. I considered it the keystone of my teaching career and thankfully that sense has been bolstered by former students who tell me it was the most important course they took. Over the years I became discouraged by the very small class sizes (typically just two or three graduate students). I wanted to give more people an opportunity to be exposed to a comprehensive, embracing approach to music research that included both critical philosophical background and practical research skills.

In order to reach a wider audience, I compressed the course into a week and ran it during the early summer beginning in 2013. That allowed us to offer it to a broader range of music scholars. Over the years, about a hundred music scholars have attended; about half of the participants were people who already held faculty positions. What I've learned is that there's a hunger out there for practical research advice. In the arts, most doctoral students have been exposed to some research-related philosophy but rather little practical advice. When they begin their dissertation work, many arts students feel like they've been set adrift with little idea of how to go about conducting research.

Apart from students, there are also many conscientious music scholars who would like to expand and refine their research skills. People really need help. I wish there were more opportunities for folks to learn about best practices in research methods.

DS: Can you say more about what you include in these workshops?

DH: Sure. The history of research methodology is principally the history of making mistakes. Each generation of scholars discovers some new way to mess up. For example, the current generation of psychologists has learned the lesson of *positive-results bias*, and that's led to new procedures like research registration (Dal-Ré, 2014; Mlinarić, 2017). We normally think of *researchers* making mistakes, but in this



case it's primarily a problem that originates with reviewers and editors. An example problem in the arts would be the problem of *presumptive representation*—where we've recognized that scholars should be wary of speaking on behalf of other people—a problem not to be confused with the idea of “keeping in your lane.”

Teaching methodology is mainly about drawing attention to the many blunders one can make. Much of my curriculum centers on some 70 methodological “potholes” that students learn to identify and navigate around. So I teach students to recognize problems like *ad hominem* arguments, reification, cohort bias, reactivity problems, positivist fallacy, ceiling effects, and so on. In my experience, students aren't taught the most basic things, like why and when to use quotations, or when anecdotes are helpful or deceptive. Few students learn the do's and don'ts of conducting an interview or designing a survey. It helps to provide practical exercises where student read short descriptions and identify the various methodological problems.

What passes for research methods in many musicology programs tends to focus on bibliography and library tools, with occasional forays into manuscript interpretation such as understanding watermarks and chain lines. Theorists learn various analytic procedures, but they typically don't learn anything about how to conduct research so as to test, refine, or develop new analytic procedures. Ethnomusicologists get a little more background, mostly working through issues related to participant-observation, and sometimes also interview methods. However, often it's simply advice about how to use video and recording equipment and professors relaying captivating stories about adapting to fieldwork.

Psychologists learn lots of concepts related to null hypothesis testing and maybe modeling, but they aren't exposed to much beyond that. Music education folks have it particularly hard. It's difficult to do empirical research in music education when a power calculation tells you that you need to recruit 3,000 students in order to have any hope of answering your research question. As a result, many music education people have gravitated towards exclusively qualitative methods without fully understanding the advantages and disadvantages.

You hear plenty of rhetoric about learning “critical thinking” in arts programs. But those words are usually code for critical theory—mainly the legacy of Adorno and other neo-Marxist schools. Students usually learn a handful of postmodern critique strategies. Those are all worth learning, but there's so much more to learn. In particular, music students need more concrete advice, so they aren't wallowing in a sea of abstract philosophy. They need to see good models of how to build research projects from start to finish, and they need models of both good quantitative and qualitative approaches.

DS: Obviously, I've seen you do this workshop quite a few times, and you always start by asking “what would you ask God about music, if given then chance?” I've found that it really gets everyone asking these very big questions very quickly although I'll admit that I'm still not sure I have a great answer to the question. If I'm not mistaken, this is a way to get students to figure out what motivates their own research?

DH: For me, understanding starts with questions. Research begins by posing questions. What do you really want to know about music? Sure, if you could have a conversation with God, what questions would you ask?

For years I've kept a long list of questions regarding music. That includes questions like how does music give pleasure? Why do we like rubato? How and why do musical styles change? Why is Western music dominated by V-I rather than IV-I? Why do Carnatic singers produce hand gestures with each sung phrase? With training or effort, how differently might we be able to hear music? Where does syncopation come from, and why do we enjoy it? Why does a kazoo sound funny? Can musical cultures be dysfunctional or unhealthy? I think the last time I looked, I had a list of over two hundred questions.

For me, a lot of arts scholarship is confusing because I can't see what question a person is trying to address. I would hasten to add that there is an exception here for analysis.

DS: What do you mean? How is analysis an exception?

DH: There are lots of different goals evident in music analysis. I distinguish twelve different analytic aims or motivations. One of these is what I call *Analysis as Aesthetic Validation*—which I consider a type of *Analysis as Boosterism*. It's loosely inspired by a view articulated by Charles Smith (1987, pp.191–193) at the University of Buffalo.

Whether you're interpreting a musical work, a specific performance, a musician's corpus, or an entire genre or musical culture, one quite reasonable aim is that the analytic interpretation should enhance or enrich our experience of the object. The analysis here aims to make us better appreciate the work, performance, musician, style, or culture. The analysis can be some story about the origin of the work,

background about the person or cultural milieu, detailed observations about the performance or score, and so on.

What's key is that this sort of analysis can occur outside of any knowledge claims. The analysis is not concerned with being "correct." You don't have to believe that a composer, say, consciously intended to produce some specific organizational feature. There's room here for creative interpretations that don't necessarily claim anyone intended this or that. A compelling interpretation can be entirely an analytic flight of fancy. The key is that it enriches our experience. It's an aesthetic goal rather than an epistemological goal.

DS: David Temperley (2001) calls this a "suggestive" analysis.

DH: If you want an example, I'd point to Robert Schumann's programmatic stories describing Chopin's music through the imaginary characters of Florestan and Eusebius. But there's plenty of formal analysis that fits into this category. Many concert program notes also fall into this category. A good concert program enhances our experience of the music.

Of course, there are problems when the analytic story blurs the line between interpretation and implied truth claims. That's most evident in biography. Biographies can be full of made-up stuff. That's especially common in first-generation biographies that are often little more than hagiographies. They tend to be written by fans, and that's likely to introduce positive biases. Once we find out that some lovely story is fictitious, it can be a real let-down. That is to say, when we learn that a story that we assumed to be factual is actually fabricated or exaggerated, it typically ultimately *reduces* our enjoyment. *Analysis as Aesthetic Validation* works best when there are no implied knowledge claims. The purpose is not explanation.

Anyway, the larger point here is that there exist creative forms of analysis that aren't intended to answer some research question. The analysis isn't intended as an explanation. In a sense, they're best viewed as companion or complementary art works.

DS: I have a friend who likes to say that he writes "composer fan-fiction."

DH: That's a great phrase. I still prefer explanatory or question-oriented scholarship.

DS: What do you suppose the future holds for research methodology in music?

DH: Bob Gjerdingen once suggested that music cognition is the music theory of the 21st century. I'm reluctant to try to predict the future. I'd love to see what happens, but I won't be around for most of the 21st century. Music cognition requires a broadening of research methods, and until recently, there's been resistance within the music academy to develop and train students with the appropriate chops—actually, it's more inertia rather than resistance. Unless that changes, my prediction is that the most important musical discoveries in the future will come from psychologists, neuroscientists, and computer scientists. If that happens, it'll be a sad indictment of music scholarship.

DS: When collaborating, I'm always quite proud of what we as musicologists/music theorists can bring to the table. Many of these big questions still require certain domain-specific knowledge and points of view.

DH: As I mentioned in our first interview, I think disciplines are defined by the questions they ask, not by the methods they use. Questions should dictate methods, not the other way around. In my own experience, my background training is principally as a musicologist and arts scholar. I mentioned last time how I got interested in why people enjoy listening to nominally sad music and how that ultimately led me to experiments where we had participants listening to happy and sad music while we did blood draws and hormone assays. This might seem like something a long way away from traditional musicology, but if you're serious about answering a question like that, you can't limit yourself to the methods you were taught. Once again, disciplines are defined by the questions they pose, not the methods they use. You need to be willing to go where the questions take you. I think the future of music scholarship is very rosy as long as folks focus on addressing questions. If we focus on questions, the methodological basket will expand naturally.

I think an excellent model here can be found in the history of linguistics, an amazingly rich field. A century ago, linguistics was dominated by philology. It was mostly a descriptive enterprise with lots of speculative ideas about language and not much theory testing. I find modern linguistics incredibly interesting and inspiring. There's still philology, but linguists have also embraced a much wider range of approaches.

You know there's sociolinguistics, historical linguistics, brain studies, sign language analyses, emotion and prosody, comparative anatomy, pragmatics, semiotics... It's a very rich field.

The questions that motivate linguists have changed little in the past century. They're still interested in questions like: *How does language work? How is language acquired? How and why do languages change? How did speech evolve? How do we interpret Mayan hieroglyphs? What is the role of language in thought and consciousness?* And so on. What's striking is that the approaches to answering these questions are now way richer and much more powerful. I think linguistics provides an inspiring model for how I hope the future of music scholarship might unfold. The history of modern linguistics tells us that we shouldn't be afraid of musicology becoming more empirical.

DS: How do you make music scholars more interested in doing systematic and empirical research?

DH: What I've learned over my career is that philosophical and methodological arguments in defense of a more systematic, empirical, or scientific approach to music scholarship are largely ineffective in changing views within the arts and humanities (Huron, 1998). That's not to say those discussions aren't important. What's more effective in changing attitudes is evidence-rich explanations.

The way to convince folks that empirical research has much to offer the arts is by example. We simply need to do solid empirical scholarship that offers compelling, informative, and useful insights that our colleagues find inspiring. Although I might be deluding myself, my fervent hope is that my own work on expectation, form, and voice leading (Huron, 2006, 2013, 2016) offers the kinds of explanatory, evidence-based narratives for certain musical practices that people find compelling. Of course, whether these accounts stand up to future scrutiny, only time will tell.

DS: Perhaps I should follow up here by asking you for your definition of musicology.

DH: Like you, Dan, I did my PhD in Europe, so of course I think of musicology broadly as the study of music rather than specifically the history of music. That's also the way non-professionals think of it when they hear the word "musicology." When ordinary folks ask what I do, they hardly blink an eye when I tell them I'm a music professor and run a lab studying music emotions and other subjects. They have no idea how rare this is in music schools. It's only some of our colleagues who conclude we're not "really" musicologists—which of course, is an unfortunate testimony to how narrowly our discipline views itself, at least here in the United States.

I'm often disheartened when I hear the mantra that musicology embraces all approaches to the study of music. Until recently, that wasn't my experience. People who conduct empirical research have been commonly branded "positivists" by colleagues who should know better. Music scholars are usually relatively well-informed about history, but that's oddly not the case in our understanding of positivism. What passes for understanding positivism is largely a French reaction against the legacy of Comte and Saint-Simon. Positivism and empiricism are commonly conflated. The only music scholars I know of who were genuine positivists were the folks associated with the Princeton school from the 1960s—people like J. K. Randall who were deeply influenced by logical positivism, especially Rudolph Carnap. And they never conducted experiments. Hardly any science today is positivist. It shouldn't be necessary to remind people that the word "empirical" simply means knowledge gained through observation. That shouldn't be so contentious, really.

FORMALIST AND MATHEMATICAL THEORY

DS: Apart from distinguishing empirical approaches from positivist ones, you've also been quite vocal about the need to distinguish between formalist models and empirical models. I'm thinking specifically of your 2001 *Music Theory Online* article "What is a Musical Feature? Forte's Analysis of Brahms's Opus 51, no.1 Revisited" (Huron, 2001a).

DH: That analysis of Forte's work (see Forte, 1983) on the Brahms first quartet wasn't intended to critique formal theory in general. It was really about making a point about description. If I describe your face as having a nose, two eyes, and a mouth, that hardly constitutes a useful description. Noses and eyes are features of faces in general, not particular faces. A description is not helpful if it fails to distinguish some object from other like objects. So we describe a face as having close-set eyes, an aquiline nose, and bushy eyebrows.

The problem with Forte's analysis of the Brahms Opus 51, No. 1, was that he was identifying features that I showed were commonplace—more common, in fact, in Brahms's other two string quartets. His set-theoretic description doesn't tell us anything that's distinctive of the work he was analyzing. I then went on to use the same empirical method to show that a very traditional "motivic" analysis does indeed capture a distinctive feature. The goal of that study was simply to show how even renowned theorists can lapse into empty description and that you can use empirical methods to help identify what makes something unique or distinctive.

DS: Could you briefly talk about why you felt compelled to write that article, some of the difficulties in getting it published, and the reaction to it?

DH: That study highlights a common misconception regarding the use of empirical methods. The cliché view is that music analysis is interested in particularities whereas empirical approaches focus on generalization. Per Broman and Nora Engebretsen (2008) talk about the individuating goals of music analysis as contrasted with the generalizing tendencies in science. Stephen Peles used the less charitable but colorful phrase "generalization junkies."

There's some truth to these tendencies, but they're over-exaggerated. More importantly, they're not inherent to empirical methods themselves. What most folks don't realize is that similarity and difference are two sides of the same coin we call description. When you describe a face as having bushy eyebrows, that description makes sense only because you're implicitly comparing the particular face to an average or normative face. The eyebrows are bushier than what we'd consider typical. You can't actually describe something without reference to generalized or normative conditions.

Generalizations form the background to all description. When you look, you'll find this is evident even in the most rarified ethnography. You can't describe a culture or cultural event without an implicit comparison to some normative template lurking in the background.

Conversely, there's plenty of scientific research that focuses on the particular. For example, there's plenty of psychological research that focuses on individual differences, including research on personality, and, of course, clinical psychologists focus exclusively on understanding and helping individual people. Scientists aren't disinterested in the particular. They simply understand that you have to recognize what's typical before you can understand what's distinctive.

The point I'm making is that although it's appropriate to say that science tends to favor generalizations, there's nothing in empirical methods that makes this inevitable. You could view my analysis of the Brahms Opus 51, No. 1, as a concrete demonstration of that. Nor is it the case that musicology, ethnomusicology, and analysis are immune to generalization, even as they ostensibly focus on the particular. In Forte's case, he was describing something general that he thought was specific to one musical work.

To answer your question, of course before submitting that paper, I sent a copy to Allen Forte so he'd have a chance to critique or respond to it, but I never heard back from him. And yes, it proved to be difficult getting that paper published.

Neo-Riemannian Theory

DS: That's really interesting. To what extent was your critique of Forte's analysis actually a critique of formalist approaches to analysis in general? Would you have similar concerns about the work of Babbitt? Lewin?

DH: First, let me say that I have a great appreciation for mathematics and formalist methods. In the case of arts scholarship (unlike art itself), I think it's important to be clear. At their best, formalist methods can bring clarity, but they're also often a source of obfuscation.

Neo-Riemannian theory, I think, provides a useful case example. Initially, the theory was oriented towards harmony, but Rick Cohn (1996) rightly drew attention to the foundations in maximally smooth voice leading. And he rightly drew attention to the relationship to auditory perception.

In neo-Riemannian theory, there's no explanation offered as to why voice-leading parsimony might be preferred. But there are excellent reasons for pitch proximity in auditory scene analysis. The problem's illustrated in the *Exposed* or *Direct Octaves Rule*. Why, we might ask, is it more important to have step motion in the upper voice rather than the lower voice when approaching an octave? For centuries, harmony books have recommended stepwise motion in the upper voice, and that's what composers do. There's a

perfectly reasonable explanation for it, and, moreover, there's lovely experimental evidence from Claire Arthur showing the different effects on listeners (Arthur & Huron, 2016). In neo-Riemannian theory, there's no explanation for why voice-leading parsimony should be more favored in higher voices. And that's just one of many examples one could point to.

Neo-Riemannian theory doesn't offer any explanation—it doesn't address the question “why?” Why is music organized this way? And the emphasis on the formalist description takes attention away from the psychological research which does provide explanatory answers. Music students need to know that there are straightforward and empirically-grounded explanations for these musical tendencies. I think the challenge for neo-Riemannians is to clarify precisely what they bring to the table that's not better explained by music cognition.

Now, I don't mean to imply that mathematical formalisms can't be useful. You see this all the time in physics where some mathematical formalism ends up inspiring experiments that point to new discoveries. A musical example of this might be Richmond Browne's (1981) observation about the unique values in the interval-class vector for the major scale. The implication is that this facilitates mental orientation for listeners to infer the tonal center. That's a perceptual claim, and a reasonable one. The music psychology community has been remiss in not testing this claim experimentally.

The problem comes down to whether or not you're interested in explaining things. Most formalist systems are descriptive rather than explanatory. It's like labeling chords with Roman numerals. What we hope for in a good formalism is that it encapsulates or summarizes observed relationships and that the formalism then becomes the inspiration for subsequent research aimed at explaining where the relationships come from.

FALLIBILITY

DS: Could we talk a bit about being wrong here? I was once in the audience of a talk by some senior scholars who invoked a theory of yours (Huron, 2011), and I was quite impressed when you stood up in the back row and brought to their attention that your theory was, in fact, wrong (Ladinig et al., 2019)]. It was a great example to set. It also seems to run contrary to what many might think about empiricism in the arts as being in pursuit of a single “truth.”

DH: There's a lot to say here, but I think the starting point is the concept of humility. I think for many arts and humanities scholars, what's off-putting about science is the arrogance of many of its public practitioners. I partially share this view.

It might sound like a cop-out, but I think that the unwarranted truth-claims and arrogance are actually the result of the inevitable bad apples. You know, the cliché here is that science is not about discovering truth; it's about pursuing truth. There's a long intellectual history going back before John Locke and David Hume, showing that you can't establish truth through observation. In empirical science (as distinct from mathematics), there's no such thing as proof. Even if you had the truth, you would never be able to know that it was actually true. Incidentally, the argument here is not an empirical one, it's simply a point of logic. But there are historical examples that bring home the message.

When people point to an example of the provisional nature of empirical knowledge, they tend to point to historical events like the displacement of Newton by Einstein in physics. But I much prefer the historically older example of the black swan. Few people know that story.

In the 17th century, Dutch explorers returned to Europe with all sort of stories about the animals they saw in Australia. You might have thought that what would captivate Europeans at the time would have been descriptions of kangaroos—giant jackrabbits that jump around on hind legs and carry their offspring in pouches. But no, what captivated Europeans were reports of black swans.

You see, there are plenty of idioms and sayings people use, like “a bird in the hand is worth two in the bush,” “don't cry over spilled milk,” and so on. Many of these sayings were inherited from the Romans so they were translated and became part of virtually all European cultures. One of these idioms you no longer hear, but was commonplace throughout Europe at the time was “as certain as all swans are white.” You don't hear that anymore for good reasons. At the time, there were tours of black swan carcasses. People want to touch the animal and rub the feathers to make sure they weren't painted or dyed. After thousands of years of observing millions of white swans, they found black swans mind-boggling. Here was concrete evidence that truth can't be established through observation. No matter how many millions of observations you make with

precisely the same results, you're never justified in assuming the relationship is true. You never know when you're going to encounter a black swan.

The problems arise when people mistake belief for truth. Now there's nothing wrong with people having beliefs. We couldn't operate in the world if we didn't hold convictions—like the belief that being hit by a speeding car wouldn't be good for your health. Scientists are no different from other people; they also form beliefs, and they often form beliefs based on their research. The problem is when scientists cross the Rubicon and mistake their beliefs for truth.

For example, I think that the theory of evolution by natural selection is a stunning achievement. I think the evidence is so compelling that I believe the theory to be true. But my belief in this theory doesn't make it true. Evidence can lead to belief, but evidence can't establish truth. Everyone who studies empirical methodology learns this. Philosophers call it the *Problem of Induction*. Unfortunately, most arts and humanities scholars don't read professional science articles. Instead, most of us are watching TED talks or reading popular science. We're reading either the works of science journalists, or we're hearing the words of those scientists who seek public attention.

When a journalist interviews you, you want to make sure people understand the tentativeness of the claims. But, you know, journalists dislike all the caveats. They're writing for a popular audience so they naturally want to write in a straightforward and easily understood way. When writing their article, the first thing they do is jettison all the carefully worded stuff. They want a simple punchline.

DS: I guess it's tough because you want your scholarship to reach a wide audience, but the acquisition of knowledge is incremental, and that doesn't really get the same kind of attention.

DH: Exactly. The attention of journalists is flattering, but can lead to problems. About a decade ago, I stopped giving interviews in the popular press because they made me look so unprofessional. For me, it was professionally embarrassing to be cowed into making simplified statements I knew weren't defensible. I knew my colleagues would be raising their eyebrows. I think that's a common experience for a lot of researchers. Sadly, it's those researchers who are eager to say "it's true" and want to convert an audience to their beliefs who end up in the limelight. Between the simplifications preferred by journalists and the bald insistent truth claims of a handful of outspoken scientists, I can see why people would think that scientists are arrogant. Arts and humanities scholars rightly recognize that such strong truth claims are unjustified. So the gap between evidence and belief is echoed in the gap between professional research and the public presentation of that research. I think for many arts and humanities scholars, what's intolerable about science is the triumphant arrogance of its public practitioners.

DS: That makes sense. There's not often much room left for nuance.

DH: For better or worse, most music scholarship isn't of interest to a general audience, so we don't get to see a parallel phenomenon in musicology. Imagine a Schenkerian scholar, who after speaking with a journalist, saw a popular report claiming that all good music can be reduced to Mi-Re-Do or that most musical works are variations on either "Three Blind Mice" or "Joy to the World." Or suppose that a popular report appeared claiming that the energy of Beethoven's *Fifth Symphony* is attributable to the libido of a rapist. If journalists wrote such things, then arts scholars would similarly look like arrogant fools.

Now it may be that scientists as a group are somehow more arrogant than arts and humanities scholars. But I doubt it. I've interacted extensively with both communities throughout my career, and most scholars I've met in both communities tend to have a good dose of humility. It's the outspoken ones who seem to manifest the greatest hubris, and sadly, because of their public stature, they're the ones who others see as representative of the disciplines they don't know.

In all of these fields, the bulk of the work is being done by legions of careful, self-effacing researchers—beaver away, building the edifice of knowledge one brick at a time. Think of the tens of thousands of researchers who've been working hard this past year on solutions to the COVID-19 pandemic. The vast majority of these scientists aren't arrogant narcissists. They're conscientious unsung folk whose modest individual efforts are collectively transformed into something of great value.

DS: So would you say this perception of arrogance has been a major factor in what might be seen as a lack of cross-disciplinary engagement between the arts and sciences?

DH: I love the arts, and I love the sciences, and I regret that the culture wars have generated so much more heat than light. I'm okay with Lyotard's (1979) characterization of postmodernism as "incredulity toward metanarratives", although I'd replace the word "incredulity" with "skepticism." It's not that we should not believe metanarratives, it's simply that we need to maintain a healthy skepticism towards them. Of course, we should question authority and persistently probe the legitimacy of those who hold power. But many people actually deserve to hold the power they have. There's a point at which one needs to turn skepticism on itself and be skeptical of skepticism.

In light of the recent mess with the COVID-19 pandemic, especially here in the U.S., there's something to be said for listening and acting on the advice of experts. For all our criticism of Big Pharma, for example, they delivered the goods by producing vaccines in an extraordinarily short period of time. At the same time, I dislike the triumphalism of some scientists. Our appreciation of science is generally warranted, but there are certain scientists I often wish would tone-down the rhetoric.

PUBLIC AND APPLIED MUSICOLOGY

DS: One way to approach the problem of how research is disseminated would be to write the public scholarship yourself. As you know, a major movement in musicology and theory these days has been the public musicology/public music theory initiative. This is something that's been exciting for me to see, but I know you've voiced some concerns about it. Can you speak to those concerns?

DH: I think "make the world a better place" is part of everyone's job description. I'm supportive of all efforts to use music to improve human well-being in as many ways as that's possible. The efforts to communicate music scholarship to the broader public (especially for free) and repatriate indigenous musical knowledge I think are laudable. But I do have concerns related to the more social service elements you find in the public musicology movement (e.g., Harrison et. al, 2010).

Much of the public musicology movement is about providing a new form of social service, and I think there's a lot to learn from the folks who are already involved in social services—especially social workers. One of my best friends is a former associate dean in the OSU College of Social Work. I've learned a lot from our conversations. The history of social work makes for some pretty sobering reading. Programs and initiatives come and go, and the main lesson is that what conscientious people think is a good idea doesn't always work out. Two well-known programs in the U.S. were the *D.A.R.E.* program whose aim was to reduce drug abuse, and the *Scared Straight* program which exposed juvenile delinquents to prisons as a way of scaring them away from future criminal activity. They were both popular programs that spread beyond the U.S. to other countries.

The only problem was that long-term studies showed they didn't work. The *D.A.R.E.* program had no effect on illegal drug use and actually increased alcohol and tobacco use among participants compared with matched at-risk kids who didn't participate in the program (Thomas, McLellan & Perera, 2013). And in long-term studies, participants in the *Scared Straight* program were *more* likely to engage in future criminal activity compared with those juvenile delinquents who had been randomly assigned not to participate in the program (Sloboda et al., 2009).

What social workers understand is that although we can hold the very best of intentions, our intuitions are very often wrong. Of course, intuition is essential. When we're dealing with some problem, there often isn't pertinent research to draw on, and so we have no other option but to rely on our intuitions. Musicians certainly understand that, perhaps more than others. But social workers have learned over and over again just how fallible our intuitions can be. What social workers have learned is that it's essential to maintain a healthy skepticism about the effectiveness of various programs and that you shouldn't introduce a program without a formal process in place for evaluating its effectiveness. In recruiting students to social work programs, it's not enough just to seek committed social or community activists. You need people who are skeptical of their own intuitions and who understand that the road to hell is paved with good intentions. You need people who are careful thinkers and understand the importance of evidence-based practice.

I don't want to suggest that public musicology is misguided or that we should leave social services to the professionals. When it comes to building better and more just lives, we need all the resources we can muster. What I'm saying is that we're headed for trouble if we don't take research seriously and just assume our good intentions are sufficient.

DS: What do you mean by good intentions?

DH: For example, starting up a community choir among the Somali immigrants here in Columbus may indeed contribute to a sense of identity among the participants. But the research on group identity suggests that this will weaken their sense of belonging to larger groups, such as the feeling of being an U.S. citizen, a feeling of kinship with other African Americans, or feelings of being citizens of the world. So just what precisely is being accomplished?

DS: I guess it's about understanding effectiveness, whatever that means.

DH: Yes. Regarding program assessment, there's a lot of expertise that already exists. But let's not kid ourselves: you won't find that expertise in music departments or conservatories. Social workers and other professionals won't be impressed by our amateur efforts and they will be exasperated that we'll be competing against them for scarce government and philanthropic support. It looks like we're creating a generation of new arts graduates who regard themselves as social activists, but who are badly trained, and who won't initially realize the extent of their poor training.

Despite the good intentions, my reading of the applied or public musicology (and ethnomusicology) movements is that we're headed for failure if practitioners aren't properly trained in how to conduct best-practices assessment research. We need to stop thinking in terms of good and bad people and think instead in terms of good and bad practices. And that requires that we focus on research rather than focusing on moral judgments of others. My fear is that we're headed for a repeat performance of the Mozart Effect fiasco, only on a much larger scale (Huron, 2017).

Objectivity

DS: Your point about good and bad people or practices reminds me of your view of the thorny issue of objectivity in research, and a common criticism one hears concerns the purported objectivity of science. Isn't there plenty of evidence to suggest that objectivity is impossible?

DH: Actually, at least two types of objectivity can be distinguished. One is the notion of impartiality, or the idea that researchers can be unbiased. Bias can never be eliminated, but it can be reduced. What many arts and humanities scholars don't know is that most of the methodological tools scientists learn were developed to reduce researcher bias. That includes control groups, statistical inference, replication, blind peer review, pre-registration—all of these practices arose as people became aware of yet other ways in which our unconscious biases or prejudices can be tempered or reduced.

The other day I was browsing through my empirical methodology notes; I think I counted some 30 common procedures that exist for the sole purpose of reducing researcher bias. Of course, that doesn't mean that some people don't cheat, make up data, or exaggerate claims. And we're all susceptible to all kinds of self-deceptions. We all have the capacity to be well-meaning fools. But if I had to compare scientific practices with those in the arts and humanities, sadly, I'd say that efforts to minimize bias are far more developed in the sciences.

Among arts and humanities, these procedures often look like eccentric technical obsessions. They might be more technical than conducting orchestral auditions behind a screen, but they share the same aim. They are there to save us from ourselves. Once again, we need to stop thinking in terms of good and bad people and think instead in terms of good and bad practices

DS: And the second form of objectivity?

DH: Oh yeah, the second form of objectivity relates to the idea that reality exists apart from consciousness. The usual criticism is that scientists are all materialists who labor under the illusion that they're measuring real things in a physical world. I have no doubt that most scientists believe there exists a material world beyond perception and that a tree falling in the forest really does make a sound—whether observed or not. In this regard, scientists are no different from most people, including most music scholars.

But that belief isn't inherent to science. There are plenty of scientists and schools of science that eschew entirely the idea of an objective material reality. There's a whole school of scientific epistemology—called *conventionalism*—that dispenses with the concept of a material reality. In 1906, French scientist Pierre Duhem (1906/1991) wrote a book that provides a lovely statement of this perspective. Moreover, most arts scholars aren't even aware that the logical positivists were conventionalists and subscribed to a form of

philosophical idealism in the mold of Plato, Berkeley, and Hegel. You can even see shades of anti-materialist sentiment in the so-called *Copenhagen Interpretation* in physics from the 1920s.

What I think is important is that whether or not a person believes in an independent objective material world doesn't much matter. What you believe about the ultimate nature of reality has little impact on the practice of research, and that's the case in both science and in arts scholarship.

DS: Aren't these different conceptions of the world reflected in the language scholars use?

DH: Yeah, where things seem to be problematic is when we listen to how people talk. When physicists talk, it sure sounds like they think "quarks" are something real in a material world. Or when we hear psychologists talk about "neuroticism," it sure seems like they think that's something real. Concepts and categories are slippery things. As Stephen Jay Gould famously said, "There's no such things as a fish." Most scientists are well aware of the problem, even when they talk in a way that makes everything sound reified.

Of course, we do the same thing in music. Does any musicologist believe there's such a thing as the "Romantic period" or "sonata form?" Or, for that matter, "folk music?" We learn to treat these terms as short-hands for a cluster of features. Scientists are no different. Most psychologists don't think that "neuroticism" is something "real." Instead, it's a label for a cluster of behavioral features.

In ordinary conversation, we'll use terms like "Romantic period" as a convenient short-hand. For the casual observer, they'd think that we arts scholars are reifying a concept—making the mistake of talking as though the "Romantic period" is something real. Of course, musicologists are fully cognizant of the situation. In ordinary conversation, these terms are rhetorically convenient, but in our scholarship, we're usually more careful. That's why you see so many scare quotes in scholarly articles.

In my experience, there's no difference here in the behavior of scientists or arts and humanities scholars. Depending on the field, practitioners will talk about quarks or Galant style or introversion as though these things are real. But, of course, once you challenge them, everybody will readily admit that these concepts are never directly observed and are recognized only by some operationalized criteria that are often fluid or changeable.

What's important here is to realize that there's a tendency for people to think they are careful about concepts, but everybody else is reifying concepts like crazy. Once again, I think part of the problem arises because arts and humanities scholars read popular science rather than actual science. Of course, even in the professional literature, much of the language tends to be informal for the simple reason that putting quotes around every concept becomes tedious. But as in the case of musicology, within the various scientific communities, people are well aware of the provision and contested status of such concepts.

MUSIC AND EMOTION

DS: Let's switch gears and talk about some of your research on music and emotion. You once mentioned to me that *Sweet Anticipation* (Huron, 2006) was a book you had to write as a preliminary to your work on music and emotion. You felt the need to engage with Meyer, and that book was your way of doing that. Am I remembering that correctly?

DH: In 1999 I gave a series of lectures at the University of California, Berkeley as part of my Ernest Bloch residency there. I think that the lecture series was entitled "Music and Mind." If I remember correctly, one lecture was on empiricism and postmodernism (Huron, 1998), one was on music and evolution, one was on a cognitive anthropology for music, and another was on music and emotion.

I'd been doing a lot of work on music and emotion and even before that lecture I'd already started a book manuscript tentatively entitled *How Music Makes Us Feel*. The problem with music and emotion is that it's a big topic. I realized I needed to trim the subject somehow in order to make the book project manageable.

I decided that since Leonard Meyer had already written about musical expectation, I would exclude expectation from the book. Over the next several years, I worked on that book, and I kept a separate file of emotion-related materials I didn't want to write about—including stuff related to expectation. I knew that I'd get a lot of criticism if I wrote a book about musical emotion while excluding expectation. But nevertheless, I plowed ahead. Around 2002 or so, I had a pretty thick file of material related to expectation—the topic I was excluding from *How Music Makes Us Feel*. Also, the research I was doing with Bret Aarden in our lab was really producing lots of new insights about expectation (see Aarden, 2003; Huron and Aarden, 1999).

So around that time, I realized I had a nice story to tell about expectation, and that if I wrote a separate book on expectation, that would then free me up to write about what I really wanted to write about. So *Sweet Anticipation* was a sort of sideshow. It was an accidental book. I wrote it to clear the deck so I could write about all the other aspects of music and emotion.

DS: So, can we expect *How Music Makes Us Feel* in the near future?

DH: As it turns, that process has been repeated. My work on music and sadness has similarly exploded well beyond a couple of chapters in a general book on music and emotion. I'm now in the midst of writing two books about sadness and music. I still dream of completing *How Music Makes Us Feel*, but I suspect it'll never happen because the individual components keep exploding.

Evolution

DS: You mentioned earlier your enthusiasm for Darwin's theory of evolution. One of your most cited articles is your 2001 article "Is Music an Evolutionary Adaptation?" (Huron, 2001b), but theorists don't seem to know that article as well as those from other fields. Could you talk a bit about the background to that article?

DH: Sure. For me, one of the central questions about music is the pleasure it affords. Now, pleasure is fairly rare. Of all the possible behaviors we could engage in, very few are pleasurable. People could spend hours gargling regularly with mouthwash, but instead people join community choirs and spend hours blowing air through their vocal cords. Whole cultures could have a tradition where people daily scrub the tail of horses against the stomachs of cats. But instead, we observe cultures where musicians use a bow with horsehair to activate strings made of cat gut.

The difference between these behaviors is a difference in pleasure. Singing is more pleasurable than gargling and playing a violin is more pleasurable than rubbing a dead cat's belly with a horse's tail. When it comes to the evoking of pleasure, not anything goes.

What we know about pleasure is that it's often closely linked with survival. Survival depends on activities like eating, socializing, engaging in sex, and nurturing offspring. Making these activities pleasurable has positive evolutionary consequences. Conversely, we know that pain is also closely linked with survival, since physical injury, illness, and social isolation are biologically detrimental.

Any experience of pleasure is a biological smoking gun. The experience of pleasure suggests something biologically important is going on. The purpose of my "Is Music an Evolutionary Adaptation?" was to offer a review. My aim was not to argue that music must be an evolutionary adaptation. Instead, my aim was to simply raise the question. I do review a number of theories, and I even offer my own theory. But of course, these are all simply speculative proposals.

The key question is the source of music's pleasure. Not all pleasures are adaptive. There are also non-adaptive forms of pleasure-seeking, like injecting heroin or snorting cocaine. So there is a stark choice here. If we accept the claim that much musical behavior is motivated by pleasure, then we need to ask whether music is an adaptive form of pleasure-seeking akin to eating food or a non-adaptive form of pleasure-seeking like injecting heroin.

DS: Do you think that theories of evolution are useful for the music theorist?

DH: Humans are both social and biological beings. In trying to understand ourselves we'll ultimately have to tell integrated stories that are coherent at both the socio-cultural and biological levels. Music scholars should consider biological phenomena in the same way that biologists need to attend to cultural phenomena. The full story about music is undoubtedly going to be complicated, but that story will get told only when we ignore the artificial disciplinary boundaries and think more broadly about how the pieces fit together. I'm fully committed to a bio-psycho-socio-cultural approach. So yes, I think that theories of evolution are ultimately going to intersect with what we do in music theory.

DS: On that note, how would you define music theory?

DH: Any effort to understand music. I have a pretty catholic view of theory. For me, the essence of scholarship is story-telling. Theory is telling stories about music; analysis is telling stories about particular musical works or performances. History and ethnomusicology are about telling stories about context.

Now, not all stories are equally valuable. Some stories are more compelling than others. Flights of fancy are fine, but we especially appreciate stories for which there is compelling evidence. It's the reason why "based on a true story" makes a book or movie more engrossing. For me, and I think for most people, the most appealing stories are explanatory. They tell you how and why.

Music and Sadness

DS: Much of your work since the Ernest Bloch lectures has primarily been focused on music and emotion, specifically music and sadness. Do you feel as though your work pivoted, or has it all been working toward this work?

DH: I've been interested in sad music since I was a teenager. I'm one of those people for whom sad music is the music I most enjoy. I'm not morose or depressed. People who know me know that I'm pretty gregarious and upbeat. I really enjoy energetic, happy music. But the music I most love is sad. So it's not that my work on emotion has pivoted to sadness. It's been a longstanding interest.

Also, I'm intrigued by sad music because it's part of a larger challenge of understanding the role of negative emotions generally in the arts and entertainment. People also enjoy music that taps into nominally aggressive musics like heavy metal, and into fear, such as in the enjoyment of horror films. Most recently, all of our hard work on sad music has paid off with some really interesting insights that transcend the narrow topic of sad music (Huron & Vuoskoski, 2020).

DS: Could you talk a bit about the book you're working on right now?

DH: Currently, I'm finishing a book whose working title is *The Science of Sadness*. It's my first book that doesn't have anything to do with music. It presents a general theory of melancholy, grief, and nostalgia, which I developed in the process of trying to understand musical sadness. I'm hoping to follow that up by finishing my manuscript specifically on music and sadness.

BIOLOGY AND MUSIC

DS: Perhaps more than the work of any other music scholar, your work has linked music to biology in various ways. Could you explain this a bit? Appeals to biology are not especially popular in arts scholarship.

DH: In trying to understand any phenomenon it's useful to cast around and see if other fields have something to offer. So in trying to understand music, we can look at other disciplines—like linguistics, economics, literary theory, or whatever. Often these other fields have some useful tools, concepts, or insights we can borrow or apply.

It took me a long time to recognize the importance of biology in helping to understanding music. I never really liked biology because it mostly seemed to involve a lot of rote memorization. I think the last biology course I took was in tenth grade. I wouldn't be so interested in biology if I weren't impressed by how it's been able to offer compelling explanations about some aspects of music. I would say that I was reluctantly dragged into biology.

Of course, I'm well aware that appeals to biological explanations is anathema for many arts and humanities scholars. In my experience, people don't really object to biology; they're more concerned about claims that this or that biological phenomenon means society can't change. Conservatives sometimes draw on biology in order to claim that the way things are is the way they must be. The way to address these issues is to examine in detail the specific claims (most of which don't hold water) rather than dismissing biology out of hand. Sadly, the tendency for conservatives to resort to naturalist arguments, encourages some in the arts and humanities community to reject all biological discussion as tainted by political motives.

These days it's sometimes hard to discuss possible biological factors without people automatically assuming you're a conservative—or worse—a racist, misogynist, homophobic, imperialist, neocolonialist, neoliberal, capitalist, positivist.

DS: In what ways do you think biology impacts music?

DH: The evidence suggests that the human body has shaped a lot of aspects of music. A trivial example is that the duration of a musical performance is constrained to some extent by the capacity of the human bladder! Thousands of musicians and music lovers have been grateful for the invention of the intermission. Of course, that's a trivial example; the more interesting examples require longer explanations. There's enough information in the score of a single Beethoven piano sonata to accurately estimate the frequency-related density of sensory neurons in the human cochlea. In other words, the human auditory system is written all over millions of pages of notated music. It's right there in the music notation: this isn't music written for cats, dogs, or chinchillas.

Or take the work we've been doing on sad music. Much sad music emulates melancholic or depressed speech, which is slower, quieter, lower in overall pitch, has more monotone pitch contours, has mumbled articulation, and a darker timbre. In our work, we've chronicled in detail these same features in sad musical passages in all of the cultures we've examined.

Actually, there are two forms of sadness: melancholy and grief. Melancholy is the low arousal state—blue, forlorn, depressed. And grief is the high arousal state—associated with weeping. Lindsay Warrenburg (2020) has documented in detail musical passages that are melancholy-like and intense musical passages that emulate the features of grief. In a work like Barber's *Adagio for Strings*, you see both types of passages: melancholy-like passages that are low and slow and quiet and grief-like passages that are high and intense and loud. These mimic the mourning cycle, where a person alternates between periods of active grieving and periods of quiescent sadness.

There are deep connections here with the human body. All of the acoustical features of melancholic speech can be attributed to low acetylcholine. In the case of grief, the tears, nasal congestion, choked-up feeling, and so on—all of these are classic symptoms of a systemic allergic response, and that's linked to histamine. It's the same histamine for which an allergy sufferer will reach for a bottle of antihistamine. If you're planning to attend a tear-jerker movie and you don't want your friends to see you cry, try taking an antihistamine a couple of hours before the showing.

So think of the amazing sequence that occurs when music brings a listener to tears. A bunch of sound waves impinge on an enculturated listener's ear, rattles around in their experience-steeped brain, provokes a response that bears all the hallmarks of an allergy, and the listener then declares the experience to be "sublime."

Why doesn't fluid ooze out of our mouths instead of our eyes? Why don't we squint our eyes instead of constricting our throats—that is, getting choked up? Why isn't the experience unpleasant in the same way that an allergic response is unpleasant? It turns out that there are excellent reasons explaining the specific physiological and psychological responses listeners have. There's so much to say here. But in the end, the punchline is that biology is not irrelevant to understanding the appeal of sad music. When you take sad music seriously, it leads to an incredibly rich interplay between culture, social context, individual listening experience, personality, neurochemistry, and subjective phenomenal experience. All of the elements are important.

Biology is not irrelevant to human experience, but neither is biology destiny. We need a more embracing and nuanced perspective that doesn't focus exclusively on culture, or politics, or biology, or psychology, or whatever.

DS: I think the concern for many is that biological phenomena imply a limit to human agency.

DH: Exactly. Most people are familiar with the *naturalist fallacy*—the false belief that the way things are is the way they ought to be. What most people don't know is that there is a companion or reciprocal fallacy—the *moralistic fallacy*. That's the belief that something can't be true if it has unsettling moral implications. We simply need to make our peace with reality.

I'm not religious, but I think the best guide is nicely captured in that prayer—the *serenity prayer*—which encourages us to have the courage to change what can be changed, the serenity of mind to accept what can't be changed, and the wisdom to know the difference.

I'm perpetually weary of arguments that are based on what people hope is the case rather than attending to the evidence. It doesn't help things when we believe everyone is the same or that everyone has the same potential. The key is being fully respectful of each other without perpetuating the myth that we all have the same potential.

Theories and Motivations

DS: Scientific accounts and reports can sometimes be pretty dry. How do you respond to those who fear that science will replace rich cultural interpretations with what they might see as overly mechanical narratives?

DH: I'll grant that that's sometimes the case. Sometimes a scientific account is something of a letdown. I think it was Bertrand Russell who thought that science was only rarely beautiful. But in many cases the received scientific narratives are far more interesting.

I think cosmology provides a good example. In explaining the heavens, there are indeed lots of colorful and enchanting cultural narratives about the stars. Think of the idea that the constellations influence human personality and future behavior, or the idea that configurations of stars represent various gods, and so on.

Modern cosmology offers a different narrative in which the universe is unbelievably old and unbelievably big, that space itself is being created as the universe expands, that stars manufacture all the different types of atoms from simple hydrogen, and that every atom in your body was manufactured in some star and distributed across space in supernova explosions. Modern cosmologists tell us that we're literally made of star dust. Is that story really less fascinating or enchanting?

Moreover, each scientific story has a history. Current theories in medicine, psychology, archeology, linguistics, evolution, etc.—they didn't just spontaneously arise. Each scientific account has an engrossing history in which argument and evidence produced a winding path. And for those who understand the evidence and the arguments (flawed as they may be), that intellectual path itself ultimately makes the narrative more compelling.

So, I'm not convinced by the argument that a scientific or technical approach necessarily leads to impoverished narratives. To the extent that science is interested in causality, yes, these narratives are going to rely on a lot of technical detail that can challenge our tolerance for tedium. But in the end, many of the resulting stories are as astonishing, awe-inspiring, mysterious, or magical as anything called mythology, religion, or culture. Besides, in the end, these scientific stories are part of our culture, not outside of it.

Let me add one other point here. I think, whatever stories we have about music, I'm always struck by the power of music to push them to the sidelines: once you start listening, all the talk seems to get swept away and we inevitably get lost in the music.

DS: You and I have had conversations about the role of power structures in research. I do think that an important aspect of research is the chronicling of how institutions are complicit in power, and I think that a criticism of science is that it is hardly engaged at all in this enterprise. How do you respond to that?

DH: There's so much to say here, let me just make one small point.

Foucault was ostensibly a psychoanalyst, but I think he had rather a limited understanding of people's motives. He placed the pursuit of power as the ultimate motivator and, as you point out, he encouraged us to analyze interactions as contestations of power. I think power is important, but it's not the most important human motivator.

When I've been out in the field, in Micronesia, it's clear that what people most crave is simple acknowledgement. The world is oblivious to the existence of Palauans or Yapese. They live and die in a world that couldn't care less about their existence. They're well aware of that, and it hurts. I think Otis Redding hit the nail on the head with R-E-S-P-E-C-T. People want to be acknowledged, respected, appreciated, perhaps even admired.

I'm sure there are people who are motivated primarily or exclusively by the pursuit of power, but I think that's a very small minority. Of course, all you have to do is look at the behavior of scholars to see this ambition at work. Surely every philosopher, academic, and writer who has ever put words to paper was primarily after respect, not power—including Foucault. Or consider Donald Trump. He made no secret that his ambition was to have his likeness added to Mount Rushmore. Getting your face carved on Mount Rushmore isn't about gaining power; it's about the pursuit of admiration.

Of course, an advertiser knows how to transmute fame into fortune. And fortune can, at least in many circumstances, buy power. But I think the traffic is mainly the other way. People who have money and power crave to transform that into respect and admiration.

There's that wonderful line in Aisling Walsh's (2016) film portrayal of the life of the folk painter Maud Lewis. On her deathbed, Maud's last utterance is a touching declaration of the greatest achievement in her life: "I was loved," she said, and then slowly closed her eyes for the last time. In an otherwise impoverished life struggling with awful health, she had transformed an initially callous and indifferent husband into a compassionate man who ultimately sustained her with the gift of unconditional love. Fortunately, people can thrive on remarkably little admiration.

It's the pursuit of respect or admiration that explains not just why people seek high office, but also of the reverse, people who seek low office. Hermits, ascetics, friars, nuns—they might choose a life of poverty and self-denial, but they still seek a life that is respected, even if that's ultimately solely self-respect. I think it's only psychopaths who choose power over admiration.

Sure, power is a real motivation, and there are important insights to be gained by the analysis of power relationships. And of course, we should expose the efforts of powerful people and institutions to commandeer and abuse the power they accrue. But in my opinion, the current focus on the analysis of power misconstrues what's most important to people. The main human motivation is that we are somehow acknowledged. Given the choice, most people would prefer being admired over being powerful. Being loved, even if that's by a single person—that's the cherry on the cake of life.

When we discuss or analyze a musical work, performance, or culture, our first achievement is to have acknowledged the existence of the people who created it. That, by itself, is a mitzvah—a good deed.

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