

Article

Nick Martin as a Mentor — A Perspective

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Abstract

Nick Martin has had an outsized influence on the field of behavioral genetics. Much of this influence stems from his mentorship of young scientists. I describe Nick's mentorship, and what makes it special, from a personal perspective.

Keywords: Nick Martin; mentorship; behavioral genetics; false-positive rate

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Everyone in the field of behavioral genetics knows (and has an opinion about) Nick Martin. Most have collaborated with him, many have been trained by him and he has influenced almost everyone in the field in one way or another. Nick has an encyclopedic memory of behavioral genetics findings and a thorough understanding of its theoretical foundations. This, along with his exuberance and natural charm, has made him perhaps *the* central nexus in the behavioral genetics community. Nick has been our field's greatest advocate and its greatest facilitator of collaboration, and the field would have been much different, and much diminished, had he not been a part of it.

Like many now in the field, I was brought into the fold of the wider behavioral genetics community by Nick. I met Nick in 2004 at the International Statistical Genetics Workshop in Boulder, Colorado, where he and several of his PhD students were instructors. I was finishing up my PhD in Social Psychology with a master's degree in Statistics, but did not know much at all about behavioral genetics or the methodology used to study it. In typical Nick fashion, by the end of our first meeting he had invited me out to visit Queensland Institute of Medical Research (QIMR) for a few months after I graduated and offered to pay me while there. I spent 3 months working in his lab, and it was a turning point in my career: I have considered myself a behavioral geneticist from that point forward and it is a decision I have never really second-guessed. I have returned to visit QIMR many times in the years since and have formed lifelong collaborations and friendships with the people there.

Two interactions with Nick as a mentor stand out as being particularly formative to my scientific career. The first was an 'around the water cooler' discussion we had about a recent finding at the time, that the genetic variant 5-HTTLPR appeared to modify the role that stress played on depression (Caspi et al., 2003). I came, paper in hand, wide-eyed and credulous as people newly in a field

often are, to discuss the findings. To my surprise, Nick was highly skeptical and laid out for the first time to me why the false-positive rate in science can be much higher than the alpha-level of .05 — in particular when the prior probability of a hypothesis being true are low — and why this might be especially so in candidate gene research. This was long before the 'reproducibility crisis' in behavioral sciences and before it was widely appreciated that many, and in some fields most, scientific findings are false; certainly that was news to me. Five years after that, as an assistant professor at CU Boulder, an enterprising graduate student, Laramie Duncan, came to me with the beginnings of a review paper on candidate gene-by-environment interactions that she had done for a class. Armed with a skepticism inherited from Nick about the approach, and paired with an intelligent and tenacious collaborator, that paper evolved over many iterations into a critical evaluation of the flimsy evidence supporting the enterprise (Duncan & Keller, 2011). By that time, Nick and colleagues had already published several papers attempting — with little success — to replicate previous candidate gene findings in large, highly powered (relative to candidate gene study) samples (Coventry et al., 2010; Gillespie et al., 2005; Hansell et al., 2007; Whitfield et al., 2000; Wray et al., 2008). As has become clear in the years since, Nick's skepticism was well placed. The candidate gene era stands as a cautionary tale about how a field can mislead itself for years and that science can be painfully slow in self-correcting.

The second interaction was when I showed up to Nick's office with some results showing that an earlier finding associating IQ with estimated autozygosity had not replicated in a new sample. Nick could see I was a bit crestfallen about the results. In a compassionate, if somewhat scolding tone, he told me something to the effect of, 'We are not in charge of nature. Our job is merely to report what we find as accurately as we can'. It feels odd to me now that I should have reacted so, but I felt thunderstruck, as though a weight of worry and future worry suddenly lifted from my shoulders. Having grown up academically in a field and culture where our job as scientists was to 'find interesting things', preferably those that support one's pet theory, it was liberating to realize that, no, my job really was just to report what we had found, as accurately as possible. An idea as simple as that, and I stopped

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fretting about how my studies turned out. I freely admit that I continue to root for one outcome or another, but have since realized that if the question is asked well enough, the answer should be interesting regardless of what it is. Certainly that is something to aspire to, even if it is not always attainable. I have tried to instill this perspective in my own mentees over the years. And so the 'vertical transmission', as a behavioral geneticist would put it, of this philosophy of science has passed down, mentor to mentee, across the generations.

Nick is responsible for the scientific starts of many colleagues: Sarah Medland, Dave Evans, Will Coventry, Manuel Ferreira, Brendan Zietsch, Michelle Luciano, Nathan Gillespie and Tim Bates. These are just some of the graduate students and postdocs who worked in Nick's lab and who overlapped with times I was at QIMR, but there are many more who were there before or after. My perspective on his mentorship is but one. Others would talk of his exuberance, his generosity, his willingness to listen, his advocacy of junior researchers or his impatience with lazy thinking. But I would hazard to guess that we all would agree that we would not be where we are without him. Nick has helped instill in us a passion for exploration, a healthy skepticism of everyone's findings, including our own, and a sense of duty in trying, at least, to get the answer right, regardless of what that answer is.

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