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A Reflective Conversation with Dean Keith Simonton

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(interviewed on behalf of NAJP by)
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Dr. Simonton is a Distinguished Professor and Vice Chair for the Department of Psychology at UC, Davis. He has published numerous books, and over 300 book chapters, encyclopedic entries, and journal articles. Dr. Simonton has received several awards, including the *William James Book Award*, Society for General Psychology, Division 1 – American Psychological Association (APA, 2000), *Theoretical Innovation Prize*, Society for Personality and Social Psychology, Division 8 - APA (2004), the *Rudolf Arnheim Award for Outstanding Achievement in Psychology and the Arts*, Society for the Psychology of Aesthetics, Creativity and the Arts, Division 10 - APA (1996); *Sir Francis Galton Award for Outstanding Contributions to the Study of Creativity*, International Association of Empirical Aesthetics (IAEA, 1996); and the *Award for Excellence in Research*, Mensa Education and Research Foundation (1986). He was the Editor of *Journal of Creative Behavior*, has been a Guest Editor for *Leadership Quarterly* and *Review of General Psychology*, and is also on several editorial boards.

NAJP: What are you currently working on, writing, or researching?

DKS: I typically work on several different projects all at once. They vary in their stages of completion, the degree of ambition they represent, and, of course, the specific subject matter. A partial list would have to include empirical studies of famous film composers, distinguished women psychologists, eminent African Americans, and illustrious military leaders. In addition, I have several book projects in various stages of research, organization, and writing. These range from an overview of cinematic creativity and aesthetics to a broad integration of what we know about the psychology of civilization.

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NAJP: How did you first get started or involved in this field?

DKS: It actually started when I was in elementary school. I'm not joking! My family bought a set of the *World Book Encyclopedia* because they were assured by the salesperson – my school teacher – that they would be essential as I moved through K-12. The volumes are full of photographs of strange people with odd costumes and funny hair styles. I also noticed that no member of my family had a photo in any of the volumes. So as a little kid I wondered what was required to have one's picture so honored. I eventually came to realize that most of the portraits were of individuals who made a name for themselves by some exceptional achievement. Most often they were either outstanding creators or famous (or infamous) leaders. But not until I became a psychology major did I realize that researchers actually studied the factors underlying creativity and leadership. And it was not until graduate school that I figured out a scientific approach – historiometry – to comprehend the geniuses of history.

NAJP: What do you mean exactly by the term "historiometric inquiry"?

DKS: Historiometry was a term first invented at the beginning of the twentieth century to refer to the application of scientific methods to historical and biographical data to test hypotheses about the nature of genius. In a sense, it's like psychometrics, only the methods are applied to historic figures rather than contemporary research participants. The typical historiometric study collects a large sample of eminent achievers in a particular domain, assesses those individuals on quantifiable variables – intelligence, personality, motivation, developmental experiences, personal development, social context, etc. – and then subjects those measures to statistical analyses. Interestingly, historiometry is the earliest scientific approach to the study of genius – earlier than experiments, surveys, interviews, and psychometric tests. The first historiometric inquiry was published in 1835 by the same scientist who gave us the normal distribution. In 1869 Francis Galton published the first well-known historiometric investigation, *Hereditary Genius.*

NAJP: Why study the socio-cultural context of the psychology of science?

DKS: I'm sure you meant to ask "Why study the socio-cultural context in the psychology of science?" If so, you must remember that I was originally trained in social psychology. That's the subject in which I got

my doctoral degree. My dissertation had the title of the "social psychology of creativity." Creativity is not just an individual phenomenon. It occurs in a specific social context – the cultural, political, military, and economic milieu. Without taking these circumstances into account, it would be impossible to explain why some times and places are more creative than others. Why the Golden Age of Greece and the Dark Ages of Western Europe? Did everybody in Western Civilization become genetically inferior? Or were there conditions in ancient Greece that favored creative activity whereas different conditions in Medieval Europe discouraged creative activity?

NAJP: Personality and Individual Differences. Why is it important that we look at these factors when studying scientific genius?

DKS: Or any kind of genius? Genius of any kind is correlated with specific dispositional variables, and different kinds of genius exhibit distinctive personality profiles. For instance, creators tend to display higher rates of psychopathology than do leaders, and within creators the artists tend to display higher rates than do the scientists. The distinctions can be drawn still more. Scientists in the paradigmatic disciplines like physics tend to display lower rates of psychopathology than do those in the non-paradigmatic disciplines like psychology. In general, the more constraints on the genius in a particular domain, the lower the rate of psychopathology. The same principle applies to other variables, such as openness to experience.

NAJP: Personality vs. motivation - Which is the most important set of variables in the long run? Or is it I.Q. or something else?

DKS: I don't think it's reasonable at this point in the game to specify which is "the most important set of variables in the long run." Creative genius is far too complex and our understanding far too simplistic to make confident proclamations. Intelligence is crucial. Motivation is crucial. Without either, there is nothing.

NAJP: What are some developmental antecedents (family background, role models, formal vs. informal education) that contribute to scientific genius?

DKS: To answer this question we first have to recognize that the role of developmental antecedents depends on the type of science in which the genius is engaged. As I just mentioned earlier, we can distinguish between paradigmatic and non-paradigmatic sciences, and in the case of

the former we can distinguish between revolutionary and normal paradigmatic scientists. In addition, we have to recognize that developmental factors can be arrayed along a dimension from conventional, homogeneous, and stable, to unconventional, heterogeneous, and unstable. At the former end are placed those who are firstborns from professional families, whose parents are similar in religious and ethnic origins, whose family life is very uneventful, who do very well in school and college, and who study under a single eminent mentor. At the latter end are placed later-borns whose parents are less well educated and originate from more divergent religious and ethnic backgrounds, whose family life is often disrupted by economic ups and downs, by parental loss, or some other unstabilizing event, who do less well in school and college, and who study under multiple and diverse mentors. Normal paradigmatic scientists fall on the conventional, homogeneous, and stable end of this dimension, while non-paradigmatic scientists fall on the unconventional, heterogeneous, and unstable end. Revolutionary paradigmatic scientists fall between these extremes.

NAJP: What are the two main characteristics related to scientific genius?

DKS: This question is more complicated than first meets the eye. Scientific genius shares with all forms two main characteristics: intellect and drive. That is, intelligence and motivation are crucial to success in almost all domains of exceptional achievement, whether creativity or leadership. However, creators differ from leaders in the specific nature of these characteristics. The intellect of creators concentrates on imagination, that is, the capacity to come up with new ideas, whereas that of leaders tends to be more pragmatic and social. Similarly the drive of creators tends to be more introverted, personal, and idiosyncratic, whereas that of leaders tends to be more extraverted, social, and conventional. Creative genius in the sciences, however, differs from that in the arts two ways: (a) imagination is more restrained by logic and fact and (b) the drive is a bit less personal and idiosyncratic, conforming a bit more to social conventions. See! You ask a simple question and you get a complex answer!

NAJP: In your book "*Genius, Creativity and Leadership*" (Simonton, 1984) you juxtapose personality and character, aesthetics and charisma and productivity and influence. Why did you choose these specific elements to examine?

DKS: The two most interesting parts of this question are the last two. I'll start with productivity and influence. I argue in the book that the single

most important predictor of a creator's long-term influence is his or her total lifetime output. I give the example of how a scientist's total output predicts whether or not that person will have an entry in a major encyclopedia. The connection between aesthetics and charisma is even more interesting. Aesthetics is connected with creativity, charisma with leadership. Yet these two sets of phenomena are themselves connected. In a sense, charisma may be considered an aesthetic experience associated with leaders. More recent research supports this idea. For example, the speeches delivered by charismatic US presidents tend to have a style similar to highly successful poetry.

NAJP: What are some "individual differences" in greatness?

DKS: This question is actually two. The first concerns different ways of attaining greatness, the second concerns the individual differences that correlate with the former. For example, creators attain greatness differently than do leaders or athletes or entertainers, but for creators there will be certain cognitive and dispositional traits that correlate with achieved eminence – such as imagination, independence, motivation, etc. On occasion factors that positively predict one type of greatness will be negative predictors of another type. For instance, creators tend to be very introverted, but leaders tend to be very extraverted.

NAJP: What are some longitudinal changes in creativity? In greatness?

DKS: In most of my research I have measured creativity in terms of productivity – counting either total works or high-impact works. If you tabulate output across time in consecutive age periods, you obtain a single-peaked curve. Productivity increases rapidly up to a peak and then gradually declines. The details of this peak vary according to the particular domain of creativity. Sometimes the peak occurs earlier, other times late. Sometimes the decline is steep, other times not.

Now greatness is another matter. It tends to increase over time. That is, as the creator accumulates more high-impact works, his or her "greatness" or "eminence" increases. However, the increase is not a linear function of age. After the career peak, new high-impact works are added to the cumulative total at a decreasing rate. Creators may even reach a point where "their best work is behind them" and their posthumous reputation is not affected by any additional output.

NAJP: What are some personal characteristics that contribute to greatness as a psychologist?

DKS: This question is also complex because we have to distinguish among different kinds of great psychologists. First and most obviously, we have to separate scientists from practitioners. We know a lot more about the former than the latter. And great scientists in psychology have pretty much the same characteristics as notable scientists in other disciplines. However, this last statement must be qualified because there are two major kinds of scientific psychologists. One views psychology as a natural science whereas the other views psychology as a human science. Psychologists in the former group are most similar to physicists, chemists, and biologists, whereas those in the latter group are most similar to scholars in the humanities and some social sciences. For instance, the two groups differ in openness to experience, complexity of thinking, and tolerance of ambiguity.

NAJP: In terms of the life span development of great psychologists, why did you focus on family background, career training, and nature/nurture issues?

DKS: The first two are the topics that have attracted the most research, and the third represents the most important theoretical issue in interpreting the results of this research. It was Francis Galton who, in 1874, first studied the role of family background (e.g., birth order, socioeconomic class) and career training (i.e., education) in the origins of great scientists, and it was he who first introduced the nature-nurture issue as the fundamental question in understanding these relationships.

NAJP: The specific combination of various factors seems to be imperative in producing "genius." How do you deal with the various permutations and combinations that are "out there" in the real world?

DKS: I don't quite understand what you want to be addressed. I can say that it takes a distinctive confluence of events and circumstances to produce geniuses of the highest order. That's why they are so rare. Moreover, two different combinations of forces have to come together. The first involve the general set of factors that are common to all geniuses – their intelligence, imagination, motivation, determination, etc. The second concern the specific set of factors that make each individual genius unique – truly *sui generis*. The top-level geniuses always have something that sets them apart from their colleagues. Einstein didn't just do better science than most theoretical physicists of his day. He also did different science – science that was characteristic of his personality. Indeed, sometimes the second aspect of genius gets in the way of the first aspect. Einstein's worldview allowed him to launch one of the most

important revolutions in the history of science (relativity). But that same worldview prevented him from accepting another of the most important revolutions of his time (quantum theory). A virtue was also a vice. The failed unified field theory was the monument to his failure.

NAJP: Why use Monte Carlo simulations and what are their weaknesses? Are there other options for the study of genius?

DKS: I've used Monte Carlo simulations rarely, but they do have some advantages over all alternative techniques – historiometrics, psychometrics, case-studies, psychobiography, etc. In particular, they are useful when you want to test a probability model that is too complex to formulate in mathematical terms. For instance, I used this strategy to understanding the complexities of the multiples phenomenon. This is where two individuals come up with the same discovery or invention independently of each other. Classic examples include the calculus, the theory of evolution by natural selection, Mendelian genetics, and the telephone. It turns out that this phenomenon is far too complex to comprehend using even the most sophisticated stochastic models. So instead I simulated the phenomenon using a random number generator. I was able to show that all of the key features of multiples could be explained in terms of chance. Contrary to what many had argued, multiples cannot be taken as evidence for socio-cultural determinism.

NAJP: What exactly is "chance configuration theory"?

DKS: It's the term I used back in the late 1980s to describe my version of Donald Campbell's (1960) blind-variation and selective-retention theory of the creativity process. In essence, ideas were subjected to quasi-random combinations until a stable "configuration" emerged. In more recent work I have dropped this terminology because it has caused all sorts of misinterpretations about the fundamental nature of the theory. In that respect, the term is obsolete. Yet it has managed to survive in the literature without any effort on my part to promote it. That's probably because it captures an important concept about the creativity process.

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