

The genetics of intelligence: Ethics and the conduct of trustworthy research

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With the advent of new genomic sequencing technologies, researchers around the world are working to identify genetic variants that help explain differences in intelligence. Can such findings be used to improve education for all, as some scientists believe? Or are they likely to have a chilling effect on programs meant to improve educational outcomes among disadvantaged populations? These are among the questions explored in "[The Genetics of Intelligence: Ethics and the Conduct of Trustworthy Research](#)," a special report of the Hastings Center Report.

The report assesses the science and explores concerns about the implications of the research and interest in applying it to education. It concludes with recommendations to ensure that the research is done in a way that is trustworthy and avoids the "vortex of classism and racism."

The special report is the product of a workshop on responsible research and the genetics of [intelligence](#), conducted by The Hastings Center and Columbia University's Center for Research on Ethical, Legal & Social Implications of Psychiatric, Neurologic & Behavioral Genetics in collaboration with the Johns Hopkins Center for Talented Youth (CTY) and the Johns Hopkins Berman Institute of Bioethics. The workshop was led by Erik Parens, a senior research scholar at The Hastings Center, and Paul Appelbaum, director of Columbia's center, who also serve as coeditors of the special report. The workshop was comprised of a multidisciplinary group of behavioral geneticists, sociologists, psychologists, lawyers, educators, and ethicists, who also contributed to the special report.

The workshop and special report came about after the CTY leadership approached some bioethicists, including Parens at Hastings and Gail Geller at Hopkins, for advice on a dilemma it was facing. A research team exploring the genetic underpinnings of high intelligence asked CTY if they could recruit people already participating in an ongoing CTY research project, the "Study of Exceptional Talent." The research team wanted to ask these participants if they would donate DNA samples for genomic analysis, with the ultimate goal of using findings to help improve education for highly intelligent students. CTY's leadership was unsure how to respond. On the one hand, it respected the research team and its goal. But it also worried about the potentially ugly implications, given that the history of scientific inquiry into the genetics of intelligence is marred by assumptions about the superiority of some groups over others.

Major questions addressed in the special report include:

- How likely is it that gene variants with significant influence on intelligence will be identified? While research has shown that [genetic variation](#) helps to explain why people in the same population perform differently on intelligence tests, newer DNA-based studies have thus far enjoyed little success in discovering which genetic variants produce those observed differences. Some scientists are confident that new whole-genome testing technologies, applied to large numbers of people, will lead to breakthroughs in identifying which genes help to explain those differences. Others think that the needle-in-a-haystack metaphor underestimates the difficulty. They argue that the genetic influence on intelligence involves complex interactions among genes and between genes and the environment - information that can't be gleaned merely by scanning the genomes of hundreds of

thousands of people.

- Can research into the genetics of intelligence improve education? Some scientists think that understanding which genetic variants influence intelligence can help make possible "personalized education," which would customize educational experiences to children's genomes. Others are skeptical and express concern that such research might exacerbate disparities in education opportunity by promoting the view of inherent differences in intelligence and detracting attention away from pedagogical, social, and political ways to enhance intellectual achievement.
- Given the scientific and ethical reservations about it, should research on the genetics of intelligence proceed? Despite deep concerns, none of the commentators thought that the research should be halted. "Rather, we heard that the right response to research into the genetics of general cognitive ability was to ensure that the research is done in a way that is 'trustworthy,'" write Parens and Appelbaum in the introduction to the report.

The report makes recommendations for conducting trustworthy research on the genetics of intelligence. One recommendation is that, in the conceptualization of the project, researchers should acquire awareness of and sensitivity to the historical and social context in which they should propose to do their research. Another is that they take steps to ensure that the results are accurately represented to journalists and the public. Given the high interest in the topic of the genetics of intelligence, as well as its history of being misused, Parens and Appelbaum write in the introduction that researchers have an obligation to minimize the chances that their results "are sucked into the vortex of classism and racism."

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