

# Profile of Mahzarin R. Banaji

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Harvard University experimental social psychologist Mahzarin Banaji is on the frontlines of the “implicit revolution,” a paradigm shift in psychology that, since the 1980s, has been reconceiving the relationship between unconscious and conscious mental processes. Banaji and her colleague Anthony Greenwald applied the concept to social psychology via the intertwined concepts of attitude, belief, and identity. In 1995, the duo defined implicit social cognition, introduced the term “implicit bias,” and foreshadowed the Implicit Association Test (IAT) to detect and measure automatic, unintentional biases. The IAT and other methods have enabled Banaji and her colleagues to uncover hidden biases in the form of attitudes and beliefs (stereotypes) of gender, race/ethnicity, age, sexuality, and other common social group identifiers. Elected in 2018 to the National Academy of Sciences, Banaji reports evidence in her Inaugural Article (IA) suggesting that implicit beliefs and attitudes are inextricably linked due to shared evaluative content.

## Teaching at the Age of Five Years

Banaji was raised Zoroastrian in the Hindu and Muslim cities of Hyderabad and Secunderabad, India. “My family and I remained largely within the borders of a small and homogenous Parsi community, while voraciously learning about the world through the printed page,” she says. Her father Rustom shared his love of the arts with his children, but the scientist in Banaji was equally captivated by the inner workings of toys and mechanical objects. She says, “It seemed obvious that whatever was inside and hidden from view was infinitely more fascinating than whatever was outside and accessible.”

Her mother Coomi was a teacher who, with Banaji’s aunt, opened a small school in their home. To keep her precocious daughter from getting bored, Coomi recruited five-year-old Banaji to mentor younger students. This continued until Banaji entered St. Ann’s, a local parochial school. Years later, after Banaji won the 1991 Lex Hixon ‘63 Prize for Teaching Excellence at Yale College, she recalled: “Think about it; I’ve been practicing since I was five!”



Photograph of Mahzarin Banaji. Image courtesy of Robert Taylor (photographer).

## Introduction to Experimental Social Psychology

After graduating from St. Ann’s in 1971, at the urging of her mother, Banaji entered Nizam College in Hyderabad, a college she selected partly for its proximity to a cricket stadium. She earned a bachelor of arts degree with a combined major in philosophy, English literature, and psychology in 1976. She received a National Merit Scholar Award, which supported her master’s degree program in general psychology from Osmania University. Banaji next attended Jawaharlal Nehru University in New Delhi, intending to earn a master’s degree in the study of larger social systems and with an approach comparable to that of economists and sociologists.

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In 1980, while returning home for the holidays on the train from New Delhi to Hyderabad, Banaji bought a set of books: five volumes of *The Handbook of Social Psychology* (1). They changed her life's course. She says, "By the time I reached home 24 hours later, I had polished off a volume and knew with blunt clarity that this form of experimental psychology was what I had to do." She applied to schools in the United States and won an American Association of University Women Fellowship (1980–1981) that helped pay for studies at Ohio State University, where she earned a master's degree in psychology and a PhD in psychology with a social psychology specialization.

### Mentors Influence Research Approaches

At Ohio State University, Banaji was introduced to psychologist Thomas Ostrom and Greenwald, who were linking the studies of cognition and social behavior. She says, "Rooted in this newly emerging approach, my dissertation research tackled the problem of memory for emotional events, attempting to make sense of a classic and controversial question concerning the importance of the valence of information—its positivity and negativity—or its intensity."

While at the university, she married New York-based engineer and computer scientist R. Bhaskar, who later switched to a legal career. She was also named an NIH postdoctoral fellow at the University of Washington's Department of Psychology in 1985. She says, "A feminist husband who was willing to travel to support my career and a postdoctoral traineeship made this critical phase in my development possible." Cognitive psychologist Elizabeth Loftus, known for her pioneering work on the malleability of memory, opened her laboratory to Banaji. Another mentor, Claude Steele, who was studying self-affirmation at the time, motivated Banaji.

### Development of Implicit Bias Theory

In 1986, Banaji accepted an assistant professorship at Yale University's Department of Psychology, where she was later promoted to associate and full professor positions. Her diverse research interests came into focus when she and her colleagues devised experiments that allowed them to reveal implicit gender stereotyping in test subjects (2, 3). The experiments drew from methods, such as semantic priming, that were initially developed to study the unconscious operation of memory. At Yale, Banaji performed studies with students Alex Rothman and Curtis Hardin that first used the term "implicit stereotyping" to describe reliance on gender without knowledge of doing so.

In a landmark 1995 article for *Psychological Review*, Banaji and Greenwald reviewed research findings concerning implicit social cognition (4). The identifying feature, they determined, is that past experience influences judgment in a manner not introspectively known by the individual. They concluded that not only stereotypes, but also attitudes and self-esteem, have implicit modes of operation. The article introduced the now-common term "implicit bias" to

refer to any unconsciously held set of associations about a social group. It also called for the creation of a test to empirically measure implicit attitudes.

### Empirical Assessment of Implicit Attitudes

The IAT (<https://implicit.harvard.edu/implicit/>), based on Banaji and Greenwald's collaboration that, at Yale, included the contributions of graduate student Brian Nosek, was launched for the public in 1998; a year earlier, she was awarded a John Simon Guggenheim Memorial Foundation Fellowship. The IAT is a reaction-time measure in which test takers may rapidly sort words or pictures into categories. Scores are computed by comparing speed and error rates, with the pairing of concepts either being consistent or inconsistent with stereotypes. The IAT, taken by more than 20 million people worldwide, has revealed implicit biases in the vast majority of individuals, including Banaji. She says, "Discovering my own (race) bias was a transformative moment for me. I had assumed that my egalitarianism would hold up in all parts of my mind."

In a chapter for the volume *The Nature of Remembering: Essays in Honor of Robert G. Crowder*, Banaji notes that other tools, such as functional magnetic resonance imaging (fMRI), can detect implicit attitudes (5). Banaji added that in a collaboration with Harvard colleague Elizabeth Phelps, she used fMRI to explore the neural substrates of white American subjects as they observed the faces of unfamiliar black and white males (6). The subjects' responses that were observed in the strength of their fear-potentiated startle—a reflexive physiological reaction to a presented stimulus—correlated with their IAT results. The brain activity took place in the amygdala, a subcortical structure that plays a role in emotional learning and evaluation.

### Origin and Patterns of Implicit Attitudes

In 2002, Banaji accepted her current position as the Richard Clarke Cabot Professor of Social Ethics at Harvard University's Department of Social Psychology. She also served as the first Carol K. Pforzheimer Professor at the Radcliffe Institute for Advanced Study. In 2006, Banaji and her student Andrew Baron published a child-oriented version of the IAT and administered it to white Americans aged six and 10 years (7). The researchers found that implicit prowhite/antiblack bias was not only evident in the youngest group but also was observed at the same magnitude as in adults.

More recently, Banaji and her student Jack Cao determined that people make statistically informed Bayesian stereotypic judgments themselves while hypocritically criticizing others for the same behavior (8). The study, with implications for domains such as law, business, education, and healthcare, revealed a discrepancy between how individuals perceive their own versus others' social judgments.

Banaji's work shows that explicit as well as implicit attitudes can change over the long term, as she and Harvard doctoral student Tessa Charlesworth discovered after analyzing data from more than 4 million IAT tests completed between 2004 and 2016 (9). Crucially,

the data showed that participants' automatic attitudes toward race, skin tone, and sexuality have decreased in bias over just a single decade. Because experience underlies implicit bias, Banaji reasoned that a learning modality could cause implicit attitudes to shift. With Harvard doctoral student Benedek Kurdi, she investigated two methods to instigate change and showed that both can produce changes in test subjects' attitudes (10).

For this and prior research achievements, Banaji was named a fellow of the American Academy of Arts and Sciences (2008) and became the William James Fellow of the Association for Psychological Science (2016). She earned an American Psychological Association award for Distinguished Scientific Contribution (2017) and was named Harvard College Professor (2014) for excellence in undergraduate teaching.

### Outsmarting Human Minds

The term "implicit bias" has now entered public discourse. In the 2016 presidential and vice-presidential debates, for example, candidates were asked about their views on the topic. Banaji is concerned about the manner in which the concept of implicit bias has come to be rapidly applied to training in organizations. To address this, she created Outsmarting Human Minds (<https://outsmartinghumanminds.org/>), an online project that presents modules in the form of podcasts and

videos that are freely available for teaching and learning.

Changing implicit attitudes will likely change implicit beliefs, Banaji reports in her IA (11). She and her colleagues conducted three studies, which show that the conceptual distinction between facts and preferences, explicitly obvious even to preschoolers, is not a clear distinction to the less conscious side of the mind. Banaji says, "On tests of implicit cognition, everything collapses into a single good-bad feeling, even to the point of irrationality." Since implicit attitudes and beliefs are inextricably linked, the findings raise the possibility that learning modalities targeting implicit attitudes may result in concomitant implicit belief shifts.

The implicit revolution has spread beyond academia, given that the IAT, information gleaned from Banaji's best-selling book *Blindspot: Hidden Biases of Good People* (12) coauthored with Greenwald, her TED Talk, and other aspects of her work have already been applied to continuing education at hospitals, courts, governmental agencies, universities, corporations, and more. She continues to seek answers to questions concerning the flexibility of intergroup preferences. "I know I can't will my implicit attitude to change just because I want it to," she says. "So, what would I have to do to align my values with my behavior? What would my organization have to do? What would my society have to do?"

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