

SCIENTIFIC AMERICAN FRONTIERS PROGRAM #1507 "Hidden Motives"

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HYHIDDEN MOTIVES

ALAN ALDA Hello and welcome to Scientific American Frontiers. I'm Alan Alda.

We all like to think that we understand our own minds. That we carefully weigh the pros and cons when we make a decision, and that after we've made it — even if we have cause to regret it — we know why we decided the way we did. Oh, sure, we know some choices are more emotional than rational, but even then we think we're conscious of all the conflicting arguments that run through our minds as we make a choice.

Well, in this program we'll find out how utterly deluded we are as we join in experiments revealing just how sneaky and underhanded our brains can be.

We'll discover why our brains convince us to buy a pricey branded version instead of the cheaper alternative...

How we're fooling ourselves if we think we harbor no hidden prejudices...

And we find out why we sometimes make decisions that make no sense at all.

That's all coming up in tonight's episode, Hidden Motives.

THE QUEST FOR COOL

ALAN ALDA (NARRATION) What makes a product cool? What's going on in your brain right now as you see objects both cool and un-cool floating by? Can your brain tell the difference? How is it deciding? What's the hidden motive behind the quest to be cool?

STEVE QUARTZ Today in our culture, cool is a social norm, it's a social good. It's something that is desirable to have, we rate people in terms of how cool they are, we all have at least some kind of implicit understanding of what the rules are about being cool. For young people, it's a terribly important thing: there's nothing worse for a high-schooler than not feeling cool, to be banished by it. So it's really a very important social good for us to have. It defines ultimately our identity.

ALAN ALDA (NARRATION) So — how cool am I?

TECHNICIAN This is the emergency buzzer...

ALAN ALDA (NARRATION) To find out, I've agreed to have my head examined — by lying in an MRI machine that will allow Steve Quartz to peer into my brain while I'm looking at pictures. Steve wants to see if my brain reacts differently to the images of things I think are cool as opposed to those I find un-cool. One problem for me right away is that I have no clue whether many of the 140 things parading in front of my eyes are cool or not — or even whether I think they're cool or not — or even, in some cases, what they are. It doesn't matter, all I have to do consciously is look at them. It's what my unconscious is doing — what's going on in my brain that I'm not even aware of — that Steve and his collaborators are interested in. Because while on the one hand what's cool right now in our culture can be viewed as trivial and passing — after all there's nothing more un-cool than something that was cool last week — on the other hand, how we decide what's cool, Steve believes requires the most highly evolved part of our brains — the most uniquely human — and involves nothing less than our sense of self All that from looking at stuff like shoes... It took about 30 minutes in the scanner, my brain now reeling from consumer overload.

ANETTE ASP So now we're done with the scan, we have a little survey for you...

ALAN ALDA (NARRATION) Anette Asp is Steve Quartz's extremely cool collaborator.

ANETTE ASP All the images you saw in the experiment are represented here on this paper. It goes from zero to five, and you're going to rate each image from zero, meaning not cool, to five meaning very cool.

ALAN ALDA Very cool. OK, so how do I translate that to me? If I think, do I like it, do I think it's pleasant, nice... How do I?

ANETTE ASP How you experienced them. If you think it's cool.

ALAN ALDA I mean, different people think different things by cool. This is not me saying what I think other people think are cool. This is me saying how I respond to it.

ANETTE ASP Yes, exactly.

ALAN ALDA OK.

ALAN ALDA (NARRATION) By the way, all these objects were chosen for their coolness by a panel of design experts. But it's not what they think that matters, right?

ALAN ALDA This looks un-cool to me, but I like it. So I'm saying that's cool... sort of cool. Oh, very un-cool here, very not cool. I don't know what this is, I don't like it. Ah, very cool, finally we got very cool.

ALAN ALDA (NARRATION) The iPod even I can recognize as cool. But most of this stuff...

STEVE QUARTZ It turned you that you rated most of the objects as un-cool, the majority of them as un-cool. So we took the ones that you rated cool and the ones that you rated un-cool to look at the difference. So, here's you.

ALAN ALDA OK.

STEVE QUARTZ This is you looking at the cool objects.

ALAN ALDA At the cool ones.

STEVE QUARTZ At the cool ones. Very little activation overall.

ALAN ALDA (NARRATION) It seems that the cool stuff left me cold, my brain remaining stubbornly indifferent even to things like the iPod that I thought were cool. But here's the surprise. To objects I later labeled un-cool, my brain lit up — most especially in an area that has long fascinated Steve Quartz right at the very front of the brain, where he believes our sense of self resides. About a third of everyone run through the scanner had this strong negative reaction to the un-cool, including — to her astonishment — Anette.

ANETTE ASP I had the same response. And I said I just ignored all the images that were un-cool, I'm just focusing on the cool images in the scanner. I came out and looked at the results afterwards and I responded exactly like you. Completely unanticipated. ALAN ALDA OK, now what about people like us? What for example did you react to negatively on that list?

ANETTE ASP Well, there were some sunglasses, some cars, water bottles, shoes — I mean especially clothes for me, it's a big deal. And I think the people who are high negative responders are very consciously aware of what's cool, but their main focus is to stay away from everything that is un-cool, and that's how our brains respond.

ALAN ALDA It doesn't seem like it results in a gray life. I mean, you seem very cool. Your hair is cool, your outfit is cool, right? Look at your ring there, it's great.

ANETTE ASP Thank you. Well, I think that just the fact that my brain responds so intensely to the negative stimuli, the un-cool, makes me sweat even harder to be cool.

ALAN ALDA (NARRATION) But while Anette and I have brains that unconsciously recoil from the un-cool, people in the next biggest group tested in the scanner have the opposite response. Their brains ignore the un-cool, but go wild — especially in that part at the front where our sense of social status lies — when confronted with cool. What's more, another part of the brain involved in planning movement also lights up, suggesting they are subconsciously reaching out to grab the product.

STEVE QUARTZ Being one myself...

ANETTE ASP Guess what he is...

ALAN ALDA Are you highly positive in response to cool?

STEVE QUARTZ I am, I am. I... it certainly gives me clues when I walk into a store of what to be aware of.

ANETTE ASP His brain is biased by everything that is positive, like the cool stimuli. It's very attractive to his brain. And it might be that people in that category are more impulsive, they're shop-a-holics or they're... it's important to them to be on top of trends and know about a new product coming out on the market first. They tend to jump on the new stuff faster than the people who are more worried about being cool in terms of staying away from the un-cool products.

ALAN ALDA And Steve, is that how you see yourself. Was it a surprise to you to scan yourself?

STEVE QUARTZ No, it actually confirmed my wife's suspicions.

ALAN ALDA Have you scanned your wife?

STEVE QUARTZ No, she's afraid to know what she is!

ALAN ALDA (NARRATION) Not surprisingly, this new ability to see inside our heads as we contemplate what's cool enough to covet — what attracts us to \$8 dollar bottles of water and \$5000 watches — is also attracting the attention of marketers who'd like us to buy them. In fact a whole new business called

neuromarketing is already using brain imaging to seek out the hidden motives behind our consumer desires.

HIDDEN PREJUDICE

ALAN ALDA (NARRATION) I've always thought of myself as a feminist. So I'm pretty sure I know how I'll do in this test of my reaction to women in the workplace...

ALAN ALDA I am ready to begin.

ALAN ALDA (NARRATION) ...women, in fact, like Mahzarin Banaji, who's a professor here at Harvard University. The test is called the Implicit Association Test, and it begins simply enough. I have to pair the word in the center with one of the words above, by pressing the e key with my left hand or the i key with my right. Mahzarin has told me to do this as fast as I can, because it's the time I take to make the associations that's critical to the test. Now the target words have changed, but the task remains the same, to quickly decide whether the new words belong to the left or the right. But things are about to get trickier.

MAHZARIN BANAJI It's the same thing, except that now any one of these four will show up, and when it's career or male you press the left key, when it's family or female you press the right key.

ALAN ALDA Career or male.

MAHZARIN BANAJI Yes.

ALAN ALDA (NARRATION) So now the categories are described by two words, making it harder to decide where the new words belong. But since historically male and career have gone together...

ALAN ALDA This is like you're reinforcing the stereotype here.

MAHZARIN BANAJI Yes exactly.

ALAN ALDA (NARRATION) The point of the test is to discover if, lurking beneath my feminist convictions, I actually harbor a hidden bias against women in the workplace based on all the associations between man and career and women and family that bathed the culture I grew up in.

ALAN ALDA Family or male, career or female. OK, now you're testing me.

MAHZARIN BANAJI Now we're testing you.

ALAN ALDA (NARRATION) The Implicit Association Test is designed to ferret out any bias by seeing if it takes me fractionally longer to figure out where a word belongs when the pairing of the target words — in this case family and male together, and career and female — is slightly more difficult for my brain to accept.

ALAN ALDA Corporation... family, career... You are done.

MAHZARIN BANAJI Slight. I could tell, this is very good. So let's see, you are showing a slight automatic association between male and career and only 12% of the population that takes this test shows this bias. What you're seeing is that you are showing a much smaller bias than what many other people show. I'm up here, I make a strong association between male and career and between female and family even though that's not what I consciously express.

ALAN ALDA Even though that's not what you live?

MAHZARIN BANAJI That's not what I live, but in my world... I don't know, maybe many years of working in feminist causes made you show this less.

ALAN ALDA (NARRATION) So all those years of working in feminist causes didn't manage to totally eliminate my lingering association between female and family, and male and career. What's astonishing, though, is that Mahzarin is far worse — and she's not only enjoying a very successful career — she designed the test! Another of its designers is Brian Nosek, who personally developed the test he's taking now, intended to reveal hidden racial prejudice.

ALAN ALDA These are the same faces you've seen many times.

BRIAN NOSEK Many times, many times. In fact I helped create the faces, so...

ALAN ALDA (NARRATION) The heart of this test is to see whether it is easier for Brian to match words or pictures to pairings of African American with bad, and European American with good... than when the pairings are reversed, European Americans with bad and African Americans with good.

MAHZARIN BANAJI I can predict.

BRIAN NOSEK Yeah, what do you think?

MAHZARIN BANAJI Moderate. Moderate to strong.

BRIAN NOSEK I say moderate as well. Strong preference for white!

ALAN ALDA You're taking this for the umpteenth time and you still haven't caught on to the fact that you're a little biased?

BRIAN NOSEK I think part of it is the insistence that my conscious beliefs still matter. It isn't that the fact that I keep showing these implicit biases means that I'm a biased person so we should just accept that and move on. It's that, no, I don't agree with those. I do have them, and I will admit to having these implicit biases, but I'm not going to let that rule what I consciously want to have.

ALAN ALDA (NARRATION) It really is remarkable that here I am in Cambridge, Massachusetts, perhaps the liberal capital of the country, with two academics who pride themselves on their enlightened attitudes, only to discover that they have latent within them biases they would fervently deny if their own test hadn't revealed them. But all may not be lost.

BRIAN NOSEK We have found in research and also in testing of myself, that if I put myself in a situation where I think about positive black exemplars, I think about Michael Jordan and Colin Powell and people — Martin Luther King — people who have had a very positive impact and who are also African American, I show much less bias immediately after thinking about those exemplars than if I hadn't thought about them before.

MAHZARIN BANAJI Even the simple things, like the presence of an African American experimenter reduces race bias. That the presence of a competent woman makes women's attitude to math become more positive. These kinds of studies sit in contradiction to ways in which people like I thought about these. We thought they were learned over long periods of time, that they were entrenched, they were rigid, inflexible, and in fact that does not appear to be the case, and I think that that's where the room for optimism is. So on the one hand I would like people to take these data seriously when we can show the vast numbers of people who show the bias I think we need to contend with that. On the other hand, what this work is showing is that it might not be hard to shape environments that can change these even automatic kinds of attitudes.

ALAN ALDA (NARRATION) You can find out if you harbor unconscious biases you would deny even to yourself by logging on to the Project Implicit web site. There you'll find tests of attitudes toward such things as age and religion as well as lighter fare like the Harry Potter movies versus The Lord of the Rings. Give it a try. You may be in for a shock.

TOUGH CHOICES ALAN ALDA (NARRATION) A harrowing true story used on MASH has been borrowed by researchers looking for the hidden struggles that go on when our brains are confronted with a moral dilemma. A bus full of people has to hide from enemy soldiers...

SOLDIER Quiet, nobody make a sound until they've passed.

ALAN ALDA (NARRATION) But a crying baby endangers everyone's life. Hawkeye urges the mother to keep the baby quiet — and she ends up smothering it. The question is: Is it OK to sacrifice one life in a situation like his to save the lives of everyone else? The question has been asked of subjects in a study at Princeton University — along with another version of the same dilemma, involving a train, or in some accounts, a trolley. You're standing next to a railroad switch as a train approaches. If you do nothing, the train will surely kill five foolish but innocent people standing on the track. You could save them by hitting the switch, diverting the train. The problem is that there's another foolish innocent standing on the second track.

JOSHUA GREENE So the moral question is, is it OK to hit the switch so you only run over one person instead of five? What do you think? Off the top of your head? ALAN ALDA Off the top of my head it seems it would be regrettable to kill anybody, but if you could save the five people, then you would throw the switch.

JOSHUA GREENE Well, that's what pretty much everybody we ask says. Okay, now here's a slightly different case. Trolley headed towards five people, this time, there's no other track. You're on a footbridge standing over the track. And you're standing next to this big person. And this time, the only way you can save those five people is to push the big guy off of bridge. He'll land on the tracks. He'll get squashed by the train. He'll die, but the five people will live.

ALAN ALDA Okay, so, will I push him off the bridge?

JOSHUA GREENE Yeah.

ALAN ALDA Well, it's so hypothetical. I mean, I don't even understand...First of all, I don't understand how he could ... I'd have to be really convinced that he could stop the train. But I'd be, as I'm sure most people would be, less inclined to push the guy. But, um...I don't know....It depends. It kind of depends, I mean, do I have anything against this guy?

JOSHUA GREENE No.

ALAN ALDA Would it matter to me if I lost him?

JONATHAN COHEN Yeah. Is that what you really want to do?

JOSHUA GREENE The fact that you're looking for all these sort of angles and ways out and things to question is very telling. Because most people are made rather uncomfortable by that one.

ALAN ALDA Right. I'm taking a very active role--.

JOSHUA GREENE Structurally, these are very similar cases. I mean, it's death by trolley to one person in order to save five people. Perhaps you can try and find a reason why it's OK. And this is what philosophers have been busy doing...Well we put the philosophical question about what is right and wrong aside for a second, and we asked, what's going on in the brain?

ALAN ALDA (NARRATION) What they found when people struggled with these problems in a scanner is that regions of the brain thought to be involved in emotion lit up when people thought about pushing the guy off the bridge. And just as I did, it took them longer to make that decision than the less personal one of throwing the switch. How emotion and rationality compete in decision-making is also the subject of an experiment that I'm about to be suckered into — along, apparently, with some dozen Princeton students.

ALAN SANFEY Our subject today is going to Alan Alda, whom I'm sure you all recognize, and slightly different from out run of the mill Princeton undergraduate. And so, the way it'll work is that each of you, in turn, will play one round of the game. You'll be brought into a room and sat in front of a computer terminal. You'll play the game with Alan who's gonna be downstairs in the scanner.

ALAN ALDA (NARRATION) I'll be having my brain scanned while each of the other players offers to split ten dollars with me. I can either accept or reject the offer — but if I turn it down, we both get nothing.

ALAN ALDA Well, if they give me a ridiculous offer, then I lose money because I don't accept their ridiculous offer?

JIM RILLING That's correct. If you reject the offer, neither of you get anything.

ALAN ALDA This game is like life.

ALAN ALDA (NARRATION) So it's into the MRI machine I go again. I'm given a button box to respond to the offers, which I can see projected on to a mirror above my face.

JIM RILLING Alan, are you able to read the words "Welcome to the Experiment" written on the screen there?

ALAN ALDA Yes.

ALAN ALDA (NARRATION) I hadn't expected a computer as a partner — but it's offer seems what a reasonable machine would make — so OK, I'll take it. Kelly seemed like a nice person... and she is, fine. Kathleen, let's see... What? That's ridiculous. No way. I'm beginning to wonder if this is a set-up and the people aren't actually playing, just lending their faces. Ah, another selfish oaf... Take that. Clare... surely...Oh, dud, dum, dum...yes, no... No. To heck with it. I'm now pretty sure I'm being manipulated by the experimenters, not those nice polite Princeton students...Oh, here's the computer again — maybe I can teach this thing a lesson in manners too. Zap. I was just one of some 20 people scanned in the study, which found that in most of us, blatantly unfair offers activated regions of our brains associated with feelings of anger and disgust. What's more, these responses were stronger when we thought the offer was coming from a person rather than from the computer

ALAN ALDA Was there somebody live on the other end?

ALAN SANFEY Well, um, no. Not exactly, no.

ALAN ALDA At one point they were alive. When you took their picture.

ALAN SANFEY Exactly.

ALAN ALDA I think it occurred to me somewhere in the middle of the first run, I think.

ALAN SANFEY Did that affect how you played the game?

ALAN ALDA No, I played it as if they were real people.

JONATHAN COHEN You actually rejected a couple of offers from the computer where it made avowedly unfair offers but nevertheless there's presumably there's no personal...

ALAN ALDA Well, the chances were better for me if I assumed I could move the computer around than if I just had an emotional reaction to it.

JONATHAN COHEN Or if it was just a dry response. Which is, "Hey, it's just a computer, what do I care? I'll take the two bucks and run. There's no consequences down the road for what I get.

ALAN ALDA And it's just a couple of bucks, I could--.

JONATHAN COHEN We discussed that too. And at first we thought, maybe this is an inconsequential part of your salary, but then we realized, this is PBS...maybe this is more than your getting.

ALAN ALDA No. I did very well today.

JONATHAN COHEN We haven't paid you yet. This is part of the experiment.

ALAN SANFEY You want this right now?

ALAN ALDA You think I'll be giving this back to Princeton. Forget it. What did I make?

ALAN SANFEY Forty eight dollars.

ALAN ALDA Forty eight dollars.

JONATHAN COHEN Not bad, huh?

ALAN ALDA Now, of course, you know, this has nothing to do with the science, but how did I do compared to other people?

JONATHAN COHEN I'll let these guys answer, because they're the ones...

ALAN ALDA Is that about average?

ALAN SANFEY That's actually low. Because most people would be...would reject less offers.

ALAN ALDA They would. Because... What do they report when they talk to you? Why would reject?

ALAN SANFEY Typically around the 7 and 3 mark, people have typically told us, "It's a little bit unfair but it's not too bad." So they tend to accept that. They also tend to accept everything a computer offers them. They don't really draw distinction between fairness and unfairness of a computer. Most of them will reject a 9 and 1 offer, and about half will reject the 8 and 2, and most will accept the 7 and 3.

ALAN ALDA (NARRATION) When the offers are 7 and 3, the rational regions of the brain become more active than the emotional centers, suggesting that reason is overcoming outrage. Since at least the days of Sigmund Freud, we've been aware that there are hidden motives behind much of what we decide and what we do. The tools of science are now revealing the clamor within our brains as

these hidden motives compete — and this may one day help us better understand that clamor so that our decisions aren't quite so...well, dumb.

ALAN ALDA It would be interesting to know what you recorded when I was offered the 7 and 3. Because I thought, well, gee, that's being awfully particular. Why don't you take the three? But I thought, no, no.

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