

Vision and Attitude: See the glass half full! (text of a TED talk)

Vision is the most important and prioritized sense that we have. We are constantly looking at the world around us, and quickly we identify and make sense of what it is that we see.

0:24 Let's just start with an example of that very fact. I'm going to show you a photograph of a person, just for a second or two, and I'd like for you to identify what emotion is on his face. Ready? Here you go. Go with your gut reaction. Okay. What did you see? Well, we actually surveyed over 120 individuals, and the results were mixed. People did not agree on what emotion they saw on his face. Maybe you saw discomfort. That was the most frequent response that we received. But if you asked the person on your left, they might have said regret or skepticism, and if you asked somebody on your right, they might have said something entirely different, like hope or empathy. So we are all looking at the very same face again. We might see something entirely different, because perception is subjective. What we think we see is actually filtered through our own mind's eye.

1:28 Of course, there are many other examples of how we see the world through our own mind's eye. I'm going to give you just a few. So dieters, for instance, see apples as larger than people who are not counting calories. Softball players see the ball as smaller if they've just come out of a slump, compared to people who had a hot night at the plate. And actually, our political beliefs also can affect the way we see other people, including politicians. So my research team and I decided to test this question. In 2008, Barack Obama was running for president for the very first time, and we surveyed hundreds of Americans one month before the election. What we found in this survey was that some people, some Americans, think photographs like these best reflect how Obama really looks. Of these people, 75 percent voted for Obama in the actual election. Other people, though, thought photographs like these best reflect how Obama really looks. 89 percent of these people voted for McCain. We presented many photographs of Obama one at a time, so people did not realize that what we were changing from one photograph to the next was whether we had artificially lightened or darkened his skin tone.

2:51 So how is that possible? How could it be that when I look at a person, an object, or an event, I see something very different than somebody else does? Well, the reasons are many, but one reason requires that we understand a little bit more about how our eyes work. So vision scientists know that the amount of information that we can see at any given point in time, what we can focus on, is actually relatively small. What we can see with great sharpness and clarity and accuracy is the equivalent of the surface area of our thumb on our outstretched arm. Everything else around that is blurry, rendering much of what is presented to our eyes as ambiguous. But we have to clarify and make sense of what it is that we see, and it's our mind that helps us fill in that gap. As a result, perception is a subjective experience, and that's how we end up seeing through our own mind's eye.

3:52 So, I'm a social psychologist, and it's questions like these that really intrigue me. I am fascinated by those times when people do not see eye to eye. Why is it that somebody might literally see the glass as half full, and somebody literally sees it as half empty? What is it about what one person is thinking and feeling that leads them to see the world in an entirely different way? And does that even matter? So to begin to tackle these questions, my research team and I decided to delve deeply into an issue that has received international attention: our health and fitness. Across the world, people are struggling to manage their weight, and there is a variety of strategies that we have to help us keep the pounds off. For instance, we set the best of intentions to exercise after the holidays, but actually, the majority of Americans find that their New Year's resolutions are broken by Valentine's Day. We talk to ourselves in very encouraging ways, telling ourselves this is our year to get back into shape, but that is not enough

to bring us back to our ideal weight. So why? Of course, there is no simple answer, but one reason, I argue, is that our mind's eye might work against us. Some people may literally see exercise as more difficult, and some people might literally see exercise as easier.

5:21 So, as a first step to testing these questions, we gathered objective measurements of individuals' physical fitness. We measured the circumference of their waist, compared to the circumference of their hips. A higher waist-to-hip ratio is an indicator of being less physically fit than a lower waist-to-hip ratio. After gathering these measurements, we told our participants that they would walk to a finish line while carrying extra weight in a sort of race. But before they did that, we asked them to estimate the distance to the finish line. We thought that the physical states of their body might change how they perceived the distance. So what did we find? Well, waist-to-hip ratio predicted perceptions of distance. People who were out of shape and unfit actually saw the distance to the finish line as significantly greater than people who were in better shape. People's states of their own body changed how they perceived the environment. But so too can our mind. In fact, our bodies and our minds work in tandem to change how we see the world around us.

6:30 That led us to think that maybe people with strong motivations and strong goals to exercise might actually see the finish line as closer than people who have weaker motivations. So to test whether motivations affect our perceptual experiences in this way, we conducted a second study. Again, we gathered objective measurements of people's physical fitness, measuring the circumference of their waist and the circumference of their hips, and we had them do a few other tests of fitness. Based on feedback that we gave them, some of our participants told us they're not motivated to exercise any more. They felt like they already met their fitness goals and they weren't going to do anything else. These people were not motivated. Other people, though, based on our feedback, told us they were highly motivated to exercise. They had a strong goal to make it to the finish line. But again, before we had them walk to the finish line, we had them estimate the distance. How far away was the finish line? And again, like the previous study, we found that waist-to-hip ratio predicted perceptions of distance. Unfit individuals saw the distance as farther, saw the finish line as farther away, than people who were in better shape. Importantly, though, this only happened for people who were not motivated to exercise. On the other hand, people who were highly motivated to exercise saw the distance as short. Even the most out of shape individuals saw the finish line as just as close, if not slightly closer, than people who were in better shape.

8:05 So our bodies can change how far away that finish line looks, but people who had committed to a manageable goal that they could accomplish in the near future and who believed that they were capable of meeting that goal actually saw the exercise as easier. That led us to wonder, is there a strategy that we could use and teach people that would help change their perceptions of the distance, help them make exercise look easier?

8:34 So we turned to the vision science literature to figure out what should we do, and based on what we read, we came up with a strategy that we called, "Keep your eyes on the prize." So this is not the slogan from an inspirational poster. It's an actual directive for how to look around your environment. People that we trained in this strategy, we told them to focus their attention on the finish line, to avoid looking around, to imagine a spotlight was shining on that goal, and that everything around it was blurry and perhaps difficult to see. We thought that this strategy would help make the exercise look easier. We compared this group to a baseline group. To this group we said, just look around the environment as you naturally would. You will notice the finish line, but you might also notice the garbage can off to the right, or the people and the lamp post off to the left. We thought that people who used this strategy would see the distance as farther.

9:33 So what did we find? When we had them estimate the distance, was this strategy successful for changing their perceptual experience? Yes. People who kept their eyes on the prize saw the finish line as 30 percent closer than people who looked around as they naturally would. We thought this was great. We were really excited because it meant that this strategy helped make the exercise look easier, but the big question was, could this help make exercise actually better? Could it improve the quality of exercise as well?

10:06 So next, we told our participants, you are going to walk to the finish line while wearing extra weight. We added weights to their ankles that amounted to 15 percent of their body weight. We told them to lift their knees up high and walk to the finish line quickly. We designed this exercise in particular to be moderately challenging but not impossible, like most exercises that actually improve our fitness.

10:31 So the big question, then: Did keeping your eyes on the prize and narrowly focusing on the finish line change their experience of the exercise? It did. People who kept their eyes on the prize told us afterward that it required 17 percent less exertion for them to do this exercise than people who looked around naturally. It changed their subjective experience of the exercise. It also changed the objective nature of their exercise. People who kept their eyes on the prize actually moved 23 percent faster than people who looked around naturally. To put that in perspective, a 23 percent increase is like trading in your 1980 Chevy Citation for a 1980 Chevrolet Corvette.

11:22 We were so excited by this, because this meant that a strategy that costs nothing, that is easy for people to use, regardless of whether they're in shape or struggling to get there, had a big effect. Keeping your eyes on the prize made the exercise look and feel easier even when people were working harder because they were moving faster. Now, I know there's more to good health than walking a little bit faster, but keeping your eyes on the prize might be one additional strategy that you can use to help promote a healthy lifestyle.

11:58 If you're not convinced yet that we all see the world through our own mind's eye, let me leave you with one final example. Here's a photograph of a beautiful street in Stockholm, with two cars. The car in the back looks much larger than the car in the front. However, in reality, these cars are the same size, but that's not how we see it. So does this mean that our eyes have gone haywire and that our brains are a mess? No, it doesn't mean that at all. It's just how our eyes work. We might see the world in a different way, and sometimes that might not line up with reality, but it doesn't mean that one of us is right and one of us is wrong. We all see the world through our mind's eye, but we can teach ourselves to see it differently.

12:45 So I can think of days that have gone horribly wrong for me. I'm fed up, I'm grumpy, I'm tired, and I'm so behind, and there's a big black cloud hanging over my head, and on days like these, it looks like everyone around me is down in the dumps too. My colleague at work looks annoyed when I ask for an extension on a deadline, and my friend looks frustrated when I show up late for lunch because a meeting ran long, and at the end of the day, my husband looks disappointed because I'd rather go to bed than go to the movies. And on days like these, when everybody looks upset and angry to me, I try to remind myself that there are other ways of seeing them. Perhaps my colleague was confused, perhaps my friend was concerned, and perhaps my husband was feeling empathy instead. So we all see the world through our own mind's eye, and on some days, it might look like the world is a dangerous and challenging and insurmountable place, but it doesn't have to look that way all the time. We can teach ourselves to see it differently, and when we find a way to make the world look nicer and easier, it might actually become so.

Thank you. 13:58 (Applause) transcript of TED talk