How to Build a Happier Brain

A neuropsychological approach to happiness, by meeting core needs (safety, satisfaction, and connection) and training neurons to overcome a negativity bias

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There is a motif, in fiction and in life, of people having wonderful things happen to them, but still ending up unhappy. We can adapt to anything, it seems—you can get your dream job, marry a wonderful human, finally get 1 million dollars or Twitter followers—eventually we acclimate and find new things to complain about.

If you want to look at it on a micro level, take an average day. You go to work; make some money; eat some food; interact with friends, family or co-workers; go home; and watch some TV. Nothing particularly bad happens, but you still can’t shake a feeling of stress, or worry, or inadequacy, or loneliness.

According to Dr. Rick Hanson, a neuropsychologist, a member of U.C. Berkeley’s Greater Good Science Center’s advisory board, and author of the book *Hardwiring Happiness: The New Brain Science of Contentment, Calm, and Confidence*, our brains are naturally wired to focus on the negative, which can make us feel stressed and unhappy even though there are a lot of positive things in our lives. True, life can be hard, and legitimately terrible sometimes. Hanson’s book (a sort of self-help manual grounded in research on learning and brain structure) doesn’t suggest that we avoid dwelling on negative experiences altogether—that would be impossible. Instead, he advocates training our brains to appreciate positive experiences when we do have them, by taking the time to focus on them and install them in the brain.

I spoke with Hanson about this practice, which he calls “taking in the good,” and how evolution optimized our brains for survival, but not necessarily happiness.

“Taking in the good” is the central idea of your book. Can you explain what that is as a practice and how it works in the brain?

The simple idea is that we we all want to have good things inside ourselves: happiness, resilience, love, confidence, and so forth. The question is, how do we actually grow those, in terms of the brain? It’s really important to have positive experiences of these things that we want to grow, and then really help them sink in, because if we don’t help them sink in, they don’t become neural structure very effectively. So what my book’s about is taking the extra 10, 20, 30 seconds to enable everyday experiences to convert to neural structure so that increasingly, you have these strengths with you wherever you go.

Do you want to explain how that actually works in terms of brain structure? What is the connection between having this good experience and making tangible changes in the brain?

There’s a classic saying: "Neurons that fire together, wire together." What that means is that repeated patterns of mental activity build neural structure. This process occurs through a lot of different mechanisms, including sensitizing existing synapses and building new synapses, as well as bringing more blood to busy regions. The problem is that the brain is very good at building brain structure from negative experiences. We learn immediately from pain—you know, “once burned, twice shy.” Unfortunately, the brain is relatively poor at turning positive experiences into emotional learning neural structure.
On page one of the intro you said: “Positive thinking … is usually wasted on the brain.” Can you explain how positive thinking is different from taking in the good?

That’s a central, central question. First, positive thinking by definition is conceptual and generally verbal. And most conceptual or verbal material doesn’t have a lot of impact on how we actually feel or function over the course of the day. I know a lot of people who have this kind of positive, look on the bright side yappity yap, but deep down they’re very frightened, angry, sad, disappointed, hurt, or lonely. It hasn’t sunk in. Think of all the people who tell you why the world is a good place, but they’re still jerks.

I think positive thinking’s helpful, but in my view, it’s not so much as positive thinking as clear thinking. I think it’s important to be able to see the whole picture, the whole mosaic of reality. Both the tiles that are negative, as well as the tiles that are neutral and positive. Unfortunately, we have brains that are incentivized toward seeing the negative tiles, so if anything, deliberately looking for the positive tiles just kind of levels the playing field. But deep down, I’m a little leery of the term positive thinking because I think it could imply that we’re overlooking the negative, and I think it’s important to face the negative.

The second reason why I think most positive thinking is wasted on the brain goes to this fundamental distinction between activation and installation. When people are having positive thinking or even most positive experiences, the person is not taking the extra 10, 20 seconds to heighten the installation into neural structure. So it’s not just positive thinking that’s wasted on the brain; it’s most positive experiences that are wasted on the brain.

Why did our brains evolve to focus on the negative?

As our ancestors evolved, they needed to pass on their genes. And day-to-day threats like predators or natural hazards had more urgency and impact for survival. On the other hand, positive experiences like food, shelter, or mating opportunities, those are good, but if you fail to have one of those good experiences today, as an animal, you would have a chance at one tomorrow. But if that animal or early human failed to avoid that predator today, they could literally die as a result.

That’s why the brain today has what scientists call a negativity bias. I describe it as like Velcro for the bad, Teflon for the good. For example, negative information about someone is more memorable than positive information, which is why negative ads dominate politics. In relationships, studies show that a good, strong relationship needs at least a 5:1 ratio of positive to negative interactions.

Positive experiences use standard memory systems: moving from short-term buffers to long-term storage. But to move from a short-term buffer to long-term storage, an experience needs to be held in that short-term buffer long enough for it to transfer to long-term storage—but how often do we actually do that? We might be having one passing, normal, everyday positive experience after another: getting something done, look outside and flowers are blooming, children are laughing, chocolate tastes great, but these experiences are not transferring to storage or leading to any lasting value.

When you’re trying to avoid these threats, that’s what you call, in the book, “reactive mode” for the brain. But even though we’re wired to dwell on negative things, you still say the default state is still the relaxed or “responsive mode,” right?
Let’s take the example of zebras, borrowing from Robert Sapolsky’s great book *Why Zebras Don’t Get Ulcers*. Zebras in the wild spend most of their time in a state of relative well-being. Sometimes they’re hungry, but often they’re in a fairly relaxed place; they’re eating grass, they’re with each other in the herd. They’re in the responsive mode of the brain, what I call the green zone. Then all of a sudden, a bunch of lions attack. All the zebras go into the reactive mode, they have this burst of fight-or-flight stress, they go into the red zone, and then this episode of stress, as Sapolsky writes, ends quickly one way or another. And then they go back to the responsive mode.

So, Mother Nature’s plan is for us to spend long periods in the responsive mode. And it’s good for animals to seek to rest in the responsive mode, which is when the body repairs itself. But we have also evolved the capacity to switch out of the responsive mode very, very quickly, for a fight or flight or freeze purpose. And then we need to learn intensely what happened, to try to avoid going there ever again. So the resting state is actually very good for humans, for our long-term physical and mental health. On the other hand, it’s very important for us to learn from our negative experiences to try to prevent them in the future.

You write that people are more likely to get stuck in the reactive mode today, but if modernity takes care of most of our basic needs, why are we more likely to be in the reactive mode today than, say, in the wild?

It’s a deep question. I think it’s easy to sentimentalize hunter-gatherer life. There was a lot about it that was very hard: there was no pain control, there was no refrigeration, there was no rule of law. Childbirth was a dangerous experience for many people. There’s a lot about modernity that’s good for the Stone Age brain. We do have the ability in the developed world—far from perfect, of course—to control pain. We have modern medicine, sanitation, flushed toilets and so forth and, in many places, the rule of law. But on the other hand, modernity exposes us to chronic mild to moderate stresses, which are not good for long-term mental or physical health.

For me, one of the takeaways from that is to repeatedly internalize the sense of having our three core needs met: safety, satisfaction, and connection. By repeatedly internalizing that self-sense, we essentially grow the neural substrates of experiencing that those needs are met, even as we deal with challenges, so that we become increasingly able to manage threats or losses or rejections without tippling into the red zone.

**Could you talk a little more about those core needs—safety, satisfaction, and connection, and how to meet them?**

There are certain kinds of key experiences that address key issues. For example, experiences of relaxation, of calming, of feeling protected and strong and resourced, those directly address issues of our safety system. And having internalized again and again a sense of calm, a person is going to be more able to face situations at work or in life in general without getting so rattled by them, without being locked into the reactive mode of the brain.

In terms of our need for satisfaction, of experiences of gratitude, gladness, accomplishment, feeling successful, feeling that there’s a fullness in your life rather than an emptiness or a scarcity. As people increasingly install those traits, they’re going to be more able to deal with issues such as loss, or being thwarted, or being disappointed.

Lastly, in terms of our need for connection, the more that people can have a sense of inclusion or a sense of being seen, or appreciated, or liked or loved; the more that people can cultivate the traits of being compassionate, kind, and loving themselves, the more that they’re going to be able to stay in a responsive mode of the brain, even if they deal with issues in this connection system like being rejected or devalued or left out by somebody else.

**Do people differ in the sort of mode that they tend to be in, reactive or responsive, based on their personal history or personality?**

The short answer, I’m sure, is yes. There’s a general finding in psychology that, on average, about a third of our personal characteristics are innate, and roughly two-thirds are acquired one way or another. And so, it’s true, I think, that some people are just by tendency more reactive, more sensitive, fiery. They come out of the box that way. On the other hand, anybody can gradually develop themselves over time through repeatedly internalizing positive experiences and also learning from negative ones. There’s been research on the development of resilience, as well as many anecdotal tales of people who were very reactive because they grew up in a reactive environment—a lot of poverty or chaos in their home or within the family—but then over time, become increasingly sturdy and even-keeled as they navigate the storms of life.

**You said in the book that regular exercise can be a factor; can you explain how that helps?**
It’s interesting, and I’m someone that doesn’t like exercise. Research shows that exercise is a very good physical health factor obviously, but it also confers mental health benefits. For example, regular exercise is roughly as powerful on average for mild depression as medication is, studies show.

People who are depressed, mildly to moderately depressed, are still having positive experiences, but they’re not changing from them; they’re not learning from them. One of the theories about why exercise seems to have such a powerful effect on depression in terms of lifting the mood, is that exercise promotes the growth of new neurons in the hippocampus, which is involved with learning—both learning from specific life experiences, as well as learning how to put things into context, see things in the bigger picture. It’s possible that as exercise promotes the growth of neurons in the hippocampus, people become more able to cope with life and make use of positive experiences.

**Taking in the good seemed like something you started to do on your own in college, and then later you found that research supported the practice, is that right?**

A lot of people stumble upon something that works for them, and then later on they find out there’s a lot of research that’s related to it. For me, the research that’s relevant is on learning, both cognitive learning and especially emotional learning. How do people grow psychologically? The research on that shows that it’s a two-stage process of activation and installation. Also as a long-time clinician, I began to think about how relatively good we are as clinicians at activating positive mental states, but how bad we generally are at helping people actually install those activated states into neural structure. That was a real wake-up call for me, as a therapist.

**You include a lot of testimonials, examples from people in the book. Is this something you do in your work with your patients?**

Yeah, definitely. It’s changed the way I do therapy and more generally it’s changed the way I talk with people in life in general. Let me turn it around, to go back to your question about modernity. On the one hand, due to modernity, many people report that moment to moment, they’re having fairly positive experiences, they’re not being chased by lions, they’re not in a war zone, they’re not in agonizing pain, they have decent medical care. And yet on the other hand, many people today would report that they have a fundamental sense of feeling stressed and pressured and disconnected from other people, longing for closeness that they don’t have, frustrated, driven, etc. Why is that? I think one reason is that we’re simply wasting the positive experiences that we’re having, in part due to modernity, because we’re not taking into account that design bug in the Stone Age brain that it doesn’t learn very well.

For me, by repeatedly taking in the good to grow inner strength, you become much more able to deal with the bad. For me, taking in the good is motivated by the recognition that there’s a lot about life is hard.