

WEEKEND

Giving us pause for thought

What goes on inside us when we think, remember, imagine? A team in Haifa is plumbing the world of consciousness by using advanced tools to observe subjects who are meditating. The interventions they've developed on that basis enhance mental health – as seen among African refugees in Tel Aviv



Meditating in Australia. The Observing Minds Lab has developed a tool that creates quasi-thoughts in people's minds and examines their responses, and a tool like a treadmill in a heart lab: Instead of monitoring pulse rate, it examines the meditational state.

Paul Kane / Getty Images

Dani Bar On

“Close your eyes,” said Amit Bernstein. “Imagine that you’re in your kitchen, holding a lemon in your hand. Slice it down the center and peel it a bit. Now hold the lemon up close to your nose and sniff it. Open your mouth. Take a bite into it.”

My face scrunches up and a small smile of triumph crosses Prof. Bernstein’s face. “You’re not really holding a lemon, but your mouth is full of saliva. This is one of the amazing properties of human mind. We are so capable because of language. Think how important it is to mental time-travel, how important abstraction is. But it has an immense price.”

Just as it can be said that when human beings began to walk upright, it freed their arms and hands, although it made them more vulnerable to back pain (as some anthropologists claim) – the improvement of our thinking ability opened up infinite possibilities but also introduced no little misery into our life. It’s hard to know what dogs are thinking, for instance, but it’s reasonable to assume they don’t get upset about an overdraft at the bank. Humans do.

Bernstein, who has a doctorate in clinical psychology, and his colleagues in the Observing Minds Lab at the University of Haifa are gradually uncovering the dynamics of the world of thoughts. Their hope is that they will be able to reduce distress in the internal space in which it is created. Without recourse to psychiatric medications or lengthy and expensive psychotherapy, they ask, is it possible to get a hold of sticky thoughts that cause distress by strengthening or relaxing hidden attention muscles? And why do these thoughts become stuck in the first place, whereas other thoughts glide down the stream unhindered?

“During the past few years, we have been investigating mainly how people process all kinds of private experiences that cannot be observed externally,” explains Bernstein. “Thoughts. Memories. Imaginings. Physical sensations.” All these are subsumed under the heading of internally directed cognition – IDC – “and through them we are seeking to understand the mechanisms of IDC, how cognition shapes our mental life, how it shapes our suffering.”

Bernstein is not a “meditation researcher” per se. But meditation – more precisely, mindfulness meditation – is a key element in his research: He believes it has a powerful ability to exercise long-term influence on the mechanisms of IDC.

A generally accepted definition of

mindfulness according to an authoritative American source is “the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally, to the unfolding of experience, moment by moment.”

Research into the phenomenon of mindfulness – a practice that has been woven into East Asian traditions, such as Vipassana meditation – has grown rapidly in the past two decades, to the point where it is now conducted in dozens of labs worldwide. The findings show a positive influence of mindfulness-based interventions on a large number of mental and physical disorders and illnesses, from irritable

Analyses of data, articles about how meditation can help curb chronic stress, and the obvious need among tens of millions of refugees for inexpensive, simple treatment led to a field project at the lab.

A sequence of thoughts is often likened to a train on a track where there’s room for one car. Bernstein suggests a more precise image: a one-lane road that crosses intersections, in rapid succession.

bowel syndrome to psoriasis. While there are still many unanswered questions, and some findings are less encouraging, there are some persuasive, well-founded studies in this field – for example, in regard to depression. In November, the British Ministry of Health announced that it would be revising its therapeutic protocol for persons suffering from slight to medium levels of depression by recommending therapy, exercise, mindfulness or meditation before resorting to antidepressants. By now there is little doubt that mindfulness practice can be beneficial, but what really happens “under the hood,” so to speak, remains largely a mystery.

When Bernstein began investigating the world of cognition, he operated in a psychological atmosphere in which most research focused on the

associations between certain mental phenomena and the focus of external attention – in other words, what we notice more about the world around us. For example, there are myriad studies showing that depressives tend to look longer at images of sad faces than non-depressives. But in Bernstein’s opinion, such studies (in which he too participated in the past) are not very helpful, because they are effectively looking for the ever-elusive keys under the streetlight.

“For decades, the research paradigms focused on external attention, but if you are interested in people’s mental life, I’d place my bet on the influence of internal attention,” the professor explains. “I need to be capable of investigating your thoughts.”

The problem is that studying internal attention is far more difficult. How is it possible to discover how much attention a person is devoting to one thought as compared to another? This is the immense challenge that Bernstein and his lab associates have taken on themselves, and in recent years they have had successes. For example, they have developed an advanced tool that makes it possible to create quasi-thoughts in people’s minds and to examine their emotional response to each thought. Another tool they have developed is the meditational equivalent of the treadmill in a heart lab – only instead of monitoring pulse and respiration rate in physical activity, it examines the components of the internal mental experience during meditation. With these instruments, the team aims to develop futuristic meditative interventions that are tailor-made for the individual who is being treated and their problem.

But the work in question is not confined solely to the dim corridors of a university psychology department. Bernstein and his team are applying mindfulness-based interventions to assist a community that experiences particularly extreme levels of mental distress: African asylum seekers living in Israel. Many of these people who live among us, and have endured unimaginable horrors, experience frightening levels of depression, anxiety and posttraumatic disorder. In painstaking work during the past decade, whose principal findings were published last May, the researchers were able to show that an adjusted mindfulness program that they developed significantly reduced local asylum seekers’ levels of symptoms. They are now trying to reprise the project in the hope of diminishing the suffering of tens of millions of refugees of war and individuals suffering from forced displacement, in a world that is going through the most serious refugee and migration crisis since World War II.



Amit Bernstein was born in 1976 in Jerusalem to a chemist mother and a physicist father, and spent his early years in Haifa. When he was in second grade, the family immigrated to the United States, where he lived until the age of 32. As a result, he is more fluent in English than in Hebrew, and shifts effortlessly from one language to the other, sometimes in the same sentence. This does not necessarily make it any easier to follow his ideas, which are complicated to begin with.

After he finished his bachelor’s degree in psychology, he says, he embarked on an extensive soul-searching journey in the East.

“I got to a tiny island in Thailand,” he relates, “where I met a couple who asked me what my childhood aspirations were. That freaked me out, because I didn’t remember, and I thought about it for a few days on that beach. In the end I remembered that as a kid I dreamed of learning how to sail. I went to Phuket, stood on the wharf and looked for work on a yacht.”

After two weeks of failed efforts, Bernstein was hired to work on a luxury yacht with the symbolic name Dream Keeper, and embarked on a long voyage to Indonesia. “I understood that I had a great deal to learn about deep-water sailing, but had no interest in learning the ropes or in anything else having to do with the boat – only in the dynamics between the staff. How the guy from Seychelles gets along with the Frenchman, their life stories, why they quarrel, why

the two skippers almost killed us all when they got drunk and the boat ran aground. It was a whole human ecology, afloat in mid-ocean. At the next stop, Singapore, I jumped ship.”

On the way home he stopped off in India, where he learned to play the sitar, and met an Israeli woman named Vered who would become his wife. He persuaded her to travel with him to the United States, where she studied software engineering and he completed a doctorate in clinical psychology. Following a postdoc at Stanford, he put out feelers to obtain an academic post in North America. Then an opportunity suddenly arose in Haifa and he returned to Israel, living in the house where he grew up, on a quiet street on Mount Carmel. He and his wife have three children.

‘Working downstream’

At the beginning of his career in the early aughts, Bernstein researched a psychological concept called “distress tolerance.” He would administer carbon dioxide-enriched oxygen to subjects in order to generate a physical response associated with anxiety attacks (a rapid pulse, for example). Bernstein found that what most affected the subjects was not the intensity of their physical reaction to the enriched air, but the interpretation they gave to it – in other words, how afraid they were of the fear. That, in turn, was found to be a strong predictor of anxiety disorders.

Driving in a hailstorm, for example, is an experience that will frighten almost everyone. Drivers will experience physical discomfort, their hearts may pound, they may perspire. But the question is whether they will continue to drive slowly and carefully. Will they pull over and cry? And the following day, when the weather is better, will they have difficulty taking the wheel?

Though the studies he and his colleagues conducted had led to impressive publications, Bernstein was drawn more to the underlying factors that explain such phenomena. As he saw it, the question of how the psyche responds to physiological signals from the body comes too late in the sequence. He sought to locate the exact place in the mind that chooses from the outset what to focus on: physical sensations, thoughts, emotions – or perhaps on nothing in particular.

Bernstein: “I felt like I was working way downstream instead of at the source of the river. What are the fundamentals of this IDC, how can I influence internally directed cognition – not in the rapids near the end of the river, but at the place where the water bursts from the earth. Accordingly, along with other research groups around the world, I proceeded to focus on the basic building blocks of mental life: attention and awareness.”

At this juncture, Bernstein’s work intersected with his own habit of practicing mindfulness meditation, which he’s done off and on since adolescence. One justification for research in this field is its huge scope. According to Bernstein, many studies show that we only direct our attention to external phenomena for about half of our waking hours. If the average Israeli sleeps seven hours a night (as data of the Central Bureau of Statistics show), this means that they are engaged in internal observation for 8.5 hours every day. A small part of that time is devoted to noticing physical feelings, such as pain, hunger and pleasure – but most of it is occupied by thoughts: mental time-travel, concerns relating to the future, reflections of various kinds.

I would have surmised that in the smartphone era, people listen less to their internal selves.

“On the contrary,” Bernstein replies. Our thoughts wander least, he says, in contexts that demand our concentration, like during his own demanding workout routine, in which a lack of attention is liable to end with an injury. But scrolling down on a phone requires zero attention. You think you’re on a “smartphone,” but your mind is actually elsewhere: “I would not be surprised if it turns out that today we are more internally attentive than in the past.”

What exactly is in there, on the in-

