

Learning to Look at the Bright Side of Life: Attention Bias Modification Training Enhances Optimism Bias (2019) *Frontiers in Human Neuroscience*



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Abstract

In this behavioral study, we hypothesized that extensive training to direct attention to positive information enhances optimism bias. [...] Our findings reveal that ABMT [attention bias modification training] toward positive social information causally influences comparative optimism bias and may, thereby trigger the biases' benefits for well-being and mental health.

Research Article Quotes & Comments

"optimism bias and positive attention bias dynamically interact and recruit a common underlying neural network.

This network may comprise specific activations in the anterior and posterior cingulate cortices with functional connections to the limbic system"

Thinking and feeling networks? Obviously truncated and simplified but from a layman's perspective, that's probably a good way of looking at it..

"optimistic expectancies indeed guide visual attention toward rewarding information"

The inverse is also true. The more optimistic you are the more positive the mood ... until what you're looking forward to falls through. In this case, I've heard neuroscientist Andrew Huberman say dopamine levels plummet below baseline when anticipation is quashed.

"Attention bias modification training (ABMT: *repeated training to attend to specific target stimuli and ignore others* [...]) **reduces amygdala and insula activation toward emotional** (threatening) **stimuli** [and] has been shown to **increase frontal control** and may thereby reduce anxiety symptoms"

Dr. Dan Siegel: "use your mind to change your brain to change your mind."

"higher self-esteem was particularly associated with elevated optimism bias for positive future events but less so with optimism bias for negative future events"

"Stimuli in the experimental training task (ABMT) comprised colored photographs of a smiling/accepting and a frowning face of 16 different people (half female) that were taken from a larger stimulus set collected at Mark Baldwin's "Social Cognition and Social Intelligence Lab" at McGill University."

"Each matrix displayed one accepting face (target stimulus) and 15 frowning faces [...] Participants were instructed to click as quickly as possible with their computer mouse on the accepting face."

"The present experiment demonstrates that **repeatedly directing attention toward smiling faces and away from frowning faces over 2 weeks enhances comparative optimism bias for future positive events**, whereas performing neutral control attention training does not"

"Notably, performing the ABMT does not increase state optimism, but has specific effects on comparative optimism bias."

"people train to direct their attention *away* from negative, maladaptive information, have shown that ABMT may *reduce* activity in limbic brain areas such as the amygdala and insula (Månsson et al., 2013; Taylor et al., 2014) and enhance frontal control (Browning et al., 2010; Taylor et al., 2014). In contrast, positive-search ABMT, in which people train to direct their attention *toward* positive, adaptive information, could make positive social information (i.e., happy faces) more salient and therefore *increase* amygdala and insula activity."

"biased attention toward positive environmental information could strengthen

optimism bias and that this process is supported by specific activations in parietal and cingulate cortices"

"the brain's saliency network (comprising the insula and the dorsal anterior cingulate cortex) and the executive control network (especially its more parietal brain areas) have already been shown to play a crucial role in the reverse causal effect, namely, when optimistic expectancies guide attention to positive information"

"optimistic expectancies strongly guide attention toward reward"

The more you divert attention to the positive the more biased you will feel to pick up the positive in your day to day. This finding can also be related to emotions as discussed in neuroscientist Lisa Feldman Barrett's book *How Emotions Are Made*: "A single interoceptive cue, such as a dull ache in your abdomen, could mean a stomachache, hunger, tension, an overly tight belt, or a hundred other causes. **Your brain must explain bodily sensations to make them meaningful, and its major tool for doing so is prediction.** So, your brain models the world from the perspective of someone with your body. Just as your brain predicts the sights, smells, sounds, touches, and tastes from the world in relation to the movements of your head and limbs, it also predicts the sensory consequences of movements inside your body."

If you redirect emotional experiences and reframe them it's possible that you can train your brain to interpret things based on your expectation, hopefully positive.

"Directing attention to positive information does indeed enhance optimism bias and can thereby provoke positive feedback effects on initial optimistic expectancies. Together, these findings argue for dynamic bidirectional optimism-attention interactions that maintain positivity and contribute to well-being and mental health."

Final reflections: A client once described himself as a pessimist. I paused for a moment and he blurted out laughing because he found it funny that I couldn't reframe that in a positive way. (I often find new ways to interpret or ask questions about what clients say about themselves, to help them rethink what they believe. This particular client had a lifetime of doubting himself having a diagnosis of autism and very little support in school. He also had significant difficulty regulating his emotions and more and more often found himself retreating into himself and thinking badly

about the world. He would often state how much he'd hate people even though he spent little time getting to know them.) Then, even I spoke to him about the power of *framing* (deciding how to come to think about something *before* you take in all the information) he would briefly listen and then change the subject or zone out. He found it difficult to accept that he could make any changes in his life ... therefore this reinforced his negative worldview. He retreated more and more into watching negative News items and saw the impacts on his mood. However, when he'd take my advice and briefly take time away from the News he noticed a slight improvement in his mood. I've seen the same thing with people who take time off social media and how their mental health dramatically improves. **The point:** perspective matters, as does what we choose to pay attention to, because what we pay attention to forms the beliefs we have about ourselves, others and the world at large.

Consider what Dispenza states in his book *You Are The Placebo*: "What we're conditioned to believe about ourselves, and what we're programmed to think other people think about us, affects our performance, including how successful we are. [...] optimists [are] more likely to respond positively to a suggestion that something would make them feel better, because they [are often] primed to hope for the best future scenario. [P]essimists [on the other hand, are] more likely to respond negatively to a suggestion that something would make them feel worse, because they consciously or unconsciously expected the worst potential outcome."

This study confirms this with new evidence about diverting attention from the negative to more positive stimuli. Clinically, this can work.

One caveat: when working with traumatised clients, grief is often a necessary precondition to healing. You do not want to interrupt this but meet the person where they're at ... compassionately. Doing this still changes the experience as you're meeting them where they're at, pairing an unpleasant emotion with a kind of communal care. This will inevitably combat shame and lead to a small feeling of acceptance.

These notes were collected by psychotherapist and author Emil Barna in January 2026 in his efforts to assist with professional development and further education for himself and those who read them. But remember, they are but a

glimpse of what the article is actually about—for more context, read it at length and make up your own mind. You can find out more about Emil by visiting www.barnacc.com

“A text without a context is a pretext to a proof text.”

—Dr. Don Carson