

# Blind trust in enhancement technologies encourages risk-taking even if the tech is a sham, finds study

May 17 2023

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The researchers measured risk-taking was with the Columbia Card Task experiment. Credit: Robin Welsch

A new study published in *Computers in Human Behavior* suggests that a

placebo effect is at play when people expect their performance to be enhanced by augmentation technologies, such as artificial intelligence (AI). The researchers found that individuals with high expectations of these technologies engage in riskier decision-making, which could be a problem as people adopt these technologies without properly understanding their benefits and limits.

Augmentation technologies boosting our physical, cognitive, or sensory performance have become commonplace. Some are so widely in use that they've become invisible—spellcheck, for example—and new technologies are emerging that could push our abilities beyond human limits, like exoskeletons and AI-based vision-enhancement. But the hype around these technologies also builds expectations, which could lead people to change their behavior.

"Individuals are more inclined to take risks when they believe they are enhanced by cutting-edge technologies like AI or [brain-computer interfaces](#)," says Robin Welsch, assistant professor at Aalto University. "This occurs even if no actual enhancement technology is involved, indicating that it's about people's expectations rather than any noticeable improvement. The findings also imply that a strong belief in improvement, based on a fake system, can alter decision-making."

## **Don't trust the processor**

Together with colleagues at LMU Munich, HU Berlin and Aalto University, Welsch measured decision-making and risk-taking behavior with a well-known psychological experiment, the Columbia Card Task. In the experiment, participants win or lose points by turning over cards with hidden values. The 27 participants were led to believe that an AI-controlled [brain-computer interface](#), the placebo, would enhance their [cognitive abilities](#) by using binaural sounds to track the loss cards.

But the game was rigged—the augmentation provided no real benefit, and participants almost never encountered a loss card. Still, most of the participants thought the augmentation had helped them do better, and this made them take on greater risks. These findings show how sham cognitive enhancements can have real effects on risk-taking.

"The hype surrounding these technologies skews people's expectations," says Steeven Villa, doctoral researcher at LMU Munich. "It can lead people to make riskier decisions and favorable user evaluations, which can have real consequences."

## **Technology is never neutral**

Modern AI-based vision enhancement tools are becoming available for firefighters to see through smoke, and factory workers are already taking advantage of exoskeletons to handle loads that defy human physique. The creeping effects of generative AI systems could offer similar boosts to knowledge workers. The authors are worried that entire professions could develop a larger appetite for risks, built on misguided expectations.

"AI-based technologies that enhance users are increasingly common and play a role in real-life decisions that impact people's lives, well-being, confidence, and safety," says Thomas Kosch, professor at HU Berlin. "To ensure the effectiveness of new technologies beyond the hype, placebo-controlled studies are necessary for accurate evaluation and validation to tell apart snake-oil from real innovation."

**More information:** Steeven Villa et al, The placebo effect of human augmentation: Anticipating cognitive augmentation increases risk-taking behavior, *Computers in Human Behavior* (2023). [DOI: 10.1016/j.chb.2023.107787](https://doi.org/10.1016/j.chb.2023.107787)

Provided by Aalto University

Citation: Blind trust in enhancement technologies encourages risk-taking even if the tech is a sham, finds study (2023, May 17) retrieved 27 April 2024 from <https://techxplore.com/news/2023-05-technologies-risk-taking-tech-sham.html>

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