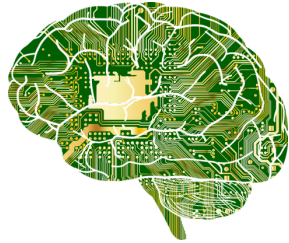


# Psychology and Technology



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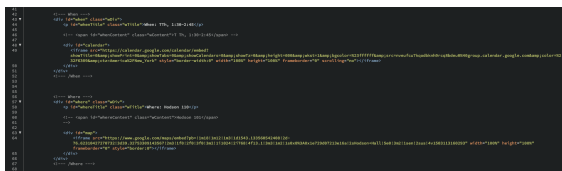
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# Questions + Themes

Does interacting with technology change how we think?

Are machines as intelligent as humans?

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Cognitive Science 26 (2002) 521–562

COGNITIVE  
SCIENCE

<http://www.elsevier.com/locate/iscogsci>

### The misunderstood limits of folk science: an illusion of explanatory depth

Leonid Rozenblit\*, Frank Keil

Department of Psychology, Yale University, 2 Hillhouse Avenue, P.O. Box 208205,  
New Haven, CT 06520-8205, USA

Received 20 August 2001; received in revised form 26 April 2002; accepted 3 May 2002

#### Abstract

People feel they understand complex phenomena with far greater precision, coherence, and depth than they really do; they are subject to an illusion—an illusion of explanatory depth. The illusion is far stronger for explanatory knowledge than many other kinds of knowledge, such as that for facts, procedures or narratives. The illusion for explanatory knowledge is more robust where the environment supports real-time explanations with visible mechanisms. We demonstrate the illusion of depth with explanatory knowledge in Studies 1–6. Then we show differences in overconfidence about knowledge across different knowledge domains in Studies 7–10. Finally, we explore the mechanisms behind the initial confidence and behind overconfidence in Studies 11 and 12, and discuss the implications of our findings for the roles of intuitive theories in concepts and cognition.

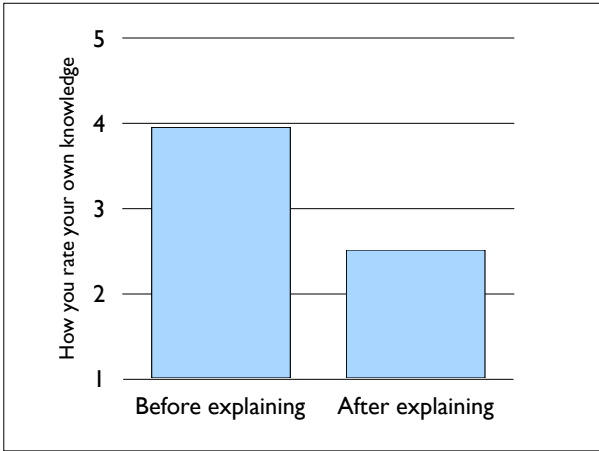
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How well do you understand how a toilet flushes?  
(1–7)

OK, tell us how!

How well do you understand how a toilet flushes?  
(1–7)




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**We don't  
know what we  
(don't) know!**

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Memory & Cognition  
2006, 34 (6), 1687-1695

**The science of cycology:  
Failures to understand  
how everyday objects work**

REBECCA LAWSON  
University of Liverpool, Liverpool, England

When their understanding of the basics of bicycle design was assessed objectively, people were found to make frequent and serious mistakes, such as believing that the chain went around the front wheel as well as the back wheel. Errors were reduced but not eliminated for bicycle experts, for men more than women, and for people who were shown a real bicycle as they were tested. The results demonstrate that most people's conceptual understanding of this familiar, everyday object is shallow and shallow, even for information that is frequently encountered and easily perceived. This evidence of a minimal and even inaccurate causal understanding is inconsistent with that of strong versions of explanation-based (or theory-based) theories of categorization.

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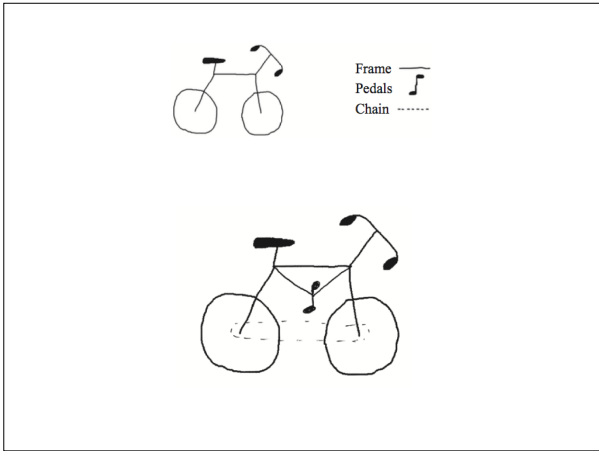
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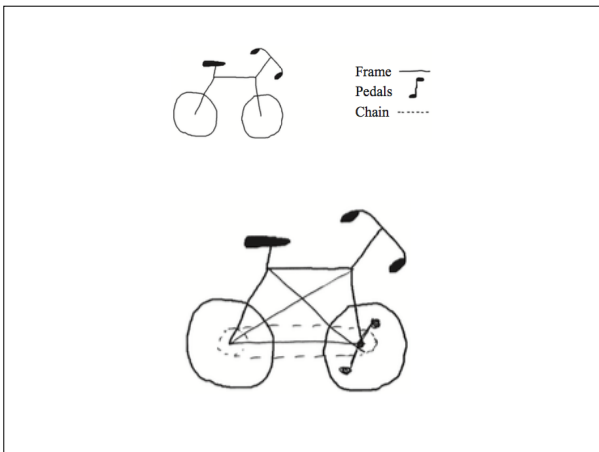
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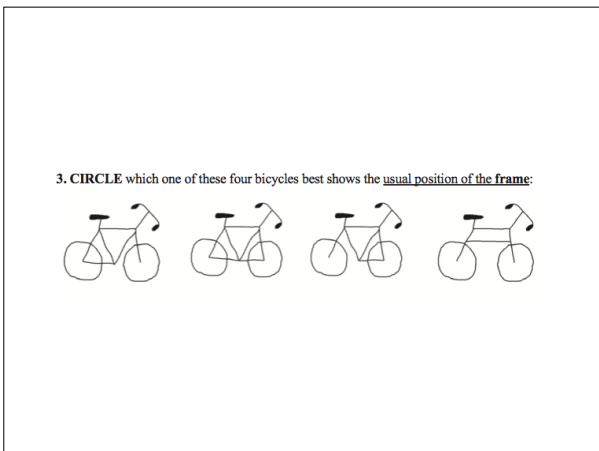
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3. CIRCLE which one of these four bicycles best shows the usual position of the frame:



**A**      **B**      **C**      **D**

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3. CIRCLE which one of these four bicycles best shows the usual position of the frame:



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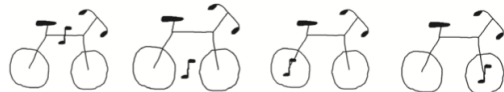
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4. CIRCLE which one of these four bicycles best shows the usual position of the pedals:



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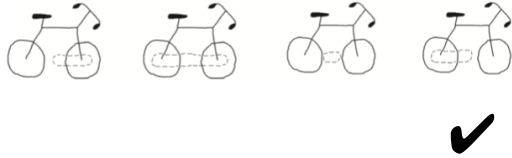
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5. CIRCLE which one of these four bicycles best shows the usual position of the chain:



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**40% make errors!**

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**We don't  
know what we  
(don't) know!**

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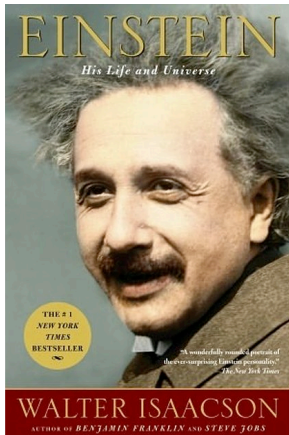
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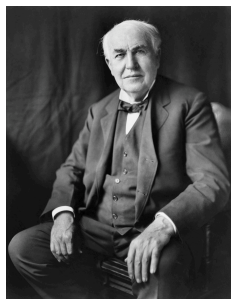
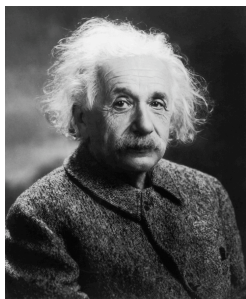
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**What is the speed of sound?**



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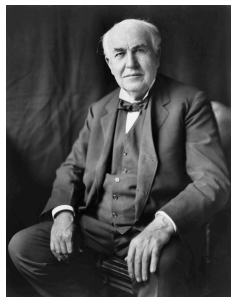
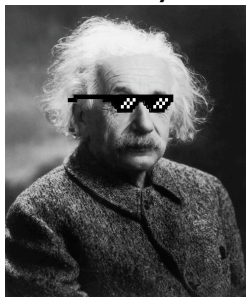
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I don't know. I don't burden my memory with such facts that I can easily find in a textbook



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# “Offloading”

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## Searching for Explanations: How the Internet Inflates Estimates of Internal Knowledge

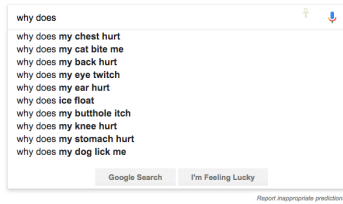
Matthew Fisher, Mariel K. Goddu, and Frank C. Keil  
Yale University

As the Internet has become a nearly ubiquitous resource for acquiring knowledge about the world, questions have arisen about its potential effects on cognition. Here we show that searching the Internet for explanatory knowledge creates an illusion whereby people mistake access to information for their own personal understanding of the information. Evidence from 9 experiments shows that searching for information online leads to an increase in self-assessed knowledge as people mistakenly think they have more knowledge "in the head," even seeing their own brains as more active as depicted by functional MRI (fMRI) images.

**Keywords:** transactive memory, explanation, knowledge

**Supplemental materials:** [http://dx.doi.org/10.1037/xap0000070.supp](#)

**PDF SEARCHED:** [http://dx.doi.org/10.1037/xap0000070.pdf](#)



## How well could you answer these questions without using outside sources?

How do scientists determine the dates of fossils?

How do scientists know that the universe is expanding

Why can't x-rays penetrate lead?

## How well could you answer these questions without using outside sources?

Why are so many people allergic to peanuts?

Why can't HIV be transmitted through saliva?

Why can't you drink alcohol on antibiotics?

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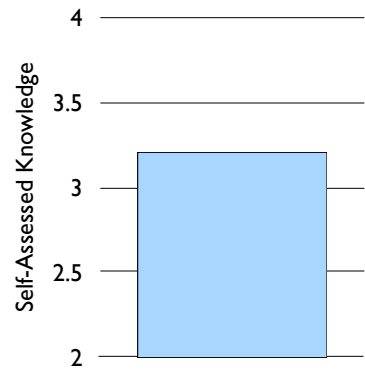
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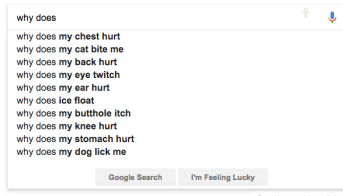
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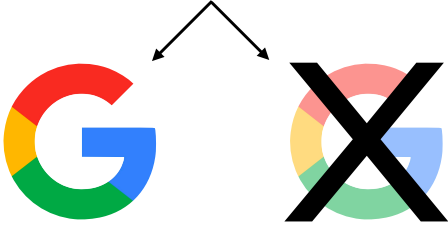
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## How does a zipper work?



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## How does a zipper work?

“please search  
howstuffworks.com to  
find an article that will  
tell you the answer”

### How Zippers Work



The zipper is one of the simplest machines of modern times and arguably one of the most essential, but it is an amazingly well-crafted bit of engineering. They have been used to close up everything from the hem of a dress, a sleeping bag or a tent flap with a zipper that will last for a decade. The zipper is an efficient and reliable fastener that has a long history. It has inspired the development of other machines.

In this article, we'll explore the various parts that make up a zipper and see how these components lock together in easy and security. The zipper is ingenious in its simplicity.

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## How well could you answer these questions without using outside sources?

What is gluten?

Why does Swiss cheese have holes?

How is vinegar made?

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## How well could you answer these questions without using outside sources?

Why are there more Atlantic hurricanes in August and September?

How do tornadoes form?

Why are cloudy nights warmer?

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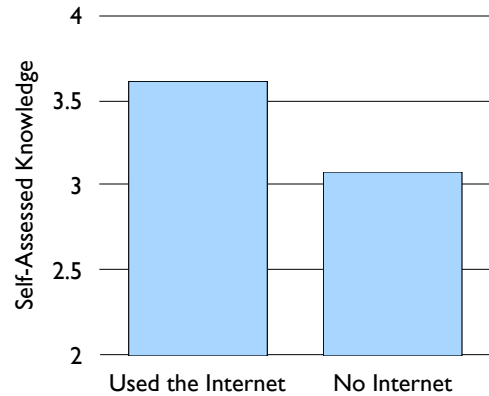
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## Wanna bet?

How much of your pay would you wager on a trivia contest against another subject?

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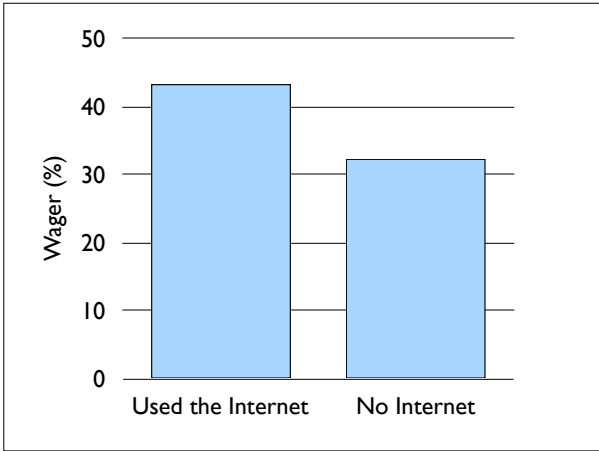
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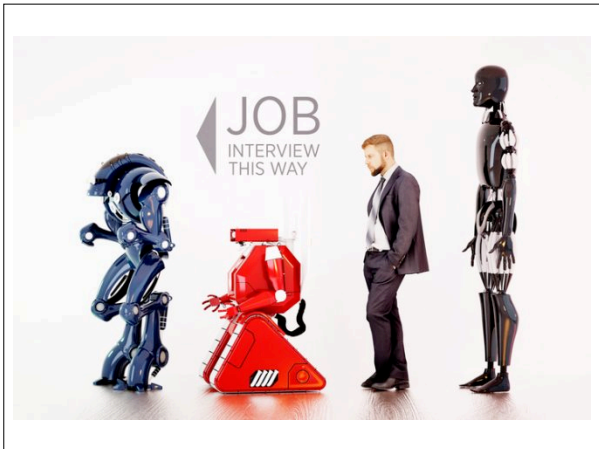
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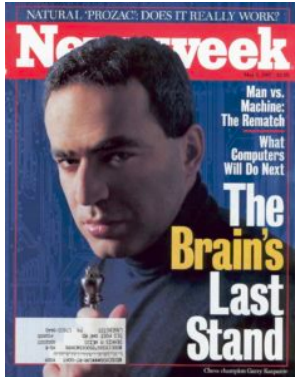
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Harmful to us?

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Better than us? Reliable?

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AS.200.101  
**Introduction to Psychology**

Fall 2024

The only introductory course where *you* are the subject

*The psychologist finds himself in the midst of a rich and vast land full of strange happenings: there are men killing themselves; a child playing; a child forming his lips trying to say his first word; a person who, having fallen in love and being caught in an unhappy situation, is not willing or not able to find a way out; there is the mystical state called hypnosis, where the will of one person seems to govern another person; there is the reaching out for higher and more difficult goals; loyalty to a group; dreaming; planning; exploring the world; and so on without end. It is an immense continent full of fascination and power and full of stretches of land where no one ever has set foot.*

*Psychology is out to conquer this continent, to find out where its treasures are hidden, to investigate its danger spots, to master its vast forces, and to utilize its energies.*

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# “Hallucinations”



Making stuff up  
academic references  
historical events  
biographical details  
Even if you ask  
it to tell the truth!

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tell me some things i might not know about johns hopkins university

- Johns Hopkins University (JHU) is widely recognized for its strong emphasis on research and medicine, but here are some lesser-known facts that might surprise you:
- 1. First Research University in the U.S.:** Johns Hopkins is often credited as the first research university in the United States. When it was founded in 1876, it was modeled after European universities, especially the German model, which emphasized creating new knowledge through research rather than just teaching.
  - 2. Influence on Modern Medical Education:** The Johns Hopkins School of Medicine, which opened in 1893, revolutionized medical education in the U.S. by establishing rigorous admission standards, integrating science into the curriculum, and introducing clinical clerkships. This model was soon adopted by many other medical schools.

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tell me some things i might not know about johns hopkins university

- Johns Hopkins University (JHU) is widely recognized for its strong emphasis on research and medicine, but here are some lesser-known facts that might surprise you:
- 3. DNA's Structure Work:** Nobel Prize-winning scientist Francis Crick worked on DNA at Johns Hopkins. While Crick and James Watson are primarily known for discovering the double-helix structure of DNA, Johns Hopkins had a vital role in the early stages of DNA research, particularly through geneticist Barbara McClintock's work on "jumping genes."
  - 4. Home of the "Hoppy":** Many people don't know that JHU students often refer to themselves as "Hoppies." Although the official nickname for their sports teams is the Blue Jays, this quirky term reflects a playful community spirit.
  - 9. The Inspiration for Michael Crichton's "The Andromeda Strain":** JHU is where Michael Crichton, famous for works like *Jurassic Park*, wrote his novel *The Andromeda Strain*. He was inspired by his experiences during his medical training, blending science with speculative fiction.



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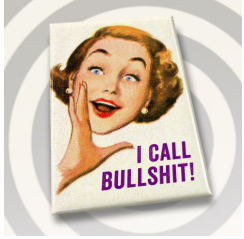
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