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Revealing the Psychology of Playing Card Magic

A psychology researcher (and magician) explains what happens after you hear “think of a card”

BY JAY OLSON

Think of a playing card. Got one in mind?

Although it may have felt like a free choice, think again: Most people choose one of only four cards, out of a deck of 52. For now, remember your card — we’ll return to it later.

For thousands of years, magicians have amazed audiences by developing and applying intuitions about the mind. Skilled magicians can manipulate memories, control attention, and influence choices. But magicians rarely know *why* these principles work. [Studying magic](#) could reveal the mechanisms of the mind that enable these principles, to uncover the *why* rather than just the *how*.

Some of these principles, such as illusions and misdirection, have recently lead to interesting discoveries. For example, in [one study](#), a magician threw a ball into the air a few times. On the third throw, however, he only pretended to throw it. Two thirds of the participants reported seeing the ball vanish in mid-air, even though it never left his hand. The participants saw something amazing — something that never actually happened.

Another example is [misdirection](#), where the magician hides the secret by

manipulating what the audience perceives or thinks. One study tracked participants' eye movements while showing them a vanishing cigarette trick. Even if participants looked directly at the secret move, they did not notice it if their attention was directed elsewhere. They looked, but did not see, thanks to the magician's misdirection.

Other principles of magic involve card tricks. Magicians can often influence people to choose a particular card from a deck, or even know which card people will choose when asked to think of one. Studying these phenomena could help us learn about the mind, as did the study of illusions and misdirection.

But before we can understand card magic, we have to understand exactly how people perceive the cards themselves. To do this, I teamed up with another researcher and magician, Alym Amlani, as well as professor Ronald Rensink at the University of British Columbia. We applied well-known techniques from vision science to measure how well people see, remember, like, and choose each of the 52 cards in a standard deck. For example, people saw cards quickly presented one after another on a computer while they searched for a target card; their accuracy indicated the card's visibility. To measure choice, we asked over a thousand people to either name or visualize a card, then recorded their selections.

Measuring these factors allowed us to test magicians' intuitions about different cards. Our results confirmed several of these intuitions. For example, magicians believe that people treat the Ace of Spades and Queen of Hearts differently from other cards. Sure enough, accuracy for detecting and remembering was highest for the Ace of Spades, and both cards were among the most liked and most often chosen. Other cards chosen frequently were

Sevens and Threes, consistent with other studies on how people choose digits.

Magicians also believe they know which cards people are least likely to choose. Now consider: Which card do you think people will name the *least* often?

Many magicians believe the answer is a mid-valued Club, like the Six of Clubs. Others appear to share that belief; hecklers sometimes end up choosing the Six during magic tricks. In fact, during pilot testing, when asked to name a card several people smugly asserted, “The Six of Clubs!”, perhaps trying to act unpredictably. But by doing so, they in fact acted more predictably. As it turned out, however, it was the black Nines that were chosen the least. Of the 1150 selections people made in our experiment, these cards were only chosen four times.

Several other common beliefs were also disproven. For example, magicians often say that when asked to name a card, women choose the Queen of Hearts more than men do. In our sample, we found the opposite: men chose the Queen of Hearts more than women did, and women chose the *King* of Hearts more than men did.

Other results appeared to be completely new. For example, people detected most cards equally well, except for the Six of Hearts and Diamonds, which seemed to be misreported more than any other cards. In other words, people saw red Sixes that were not there. Also, women seemed to prefer lower number cards, and men preferred higher ones. We don't know why.

A final interesting result was that the exact wording of the question seemed to influence which cards people chose. When asked to *name* a card, over half

of the people chose one of four cards: the Ace of Spades (25%), or the Queen (14%), Ace (6%), or King (6%) of Hearts. If you're like most people, you may have chosen one of these cards when asked at the beginning of this article. (A full [list of cards and their frequencies](#) is also available.)

But when asked to *visualize* a card, people seemed to choose the Ace of Hearts more often. In our sample, they chose it almost twice as often when asked to visualize (11%) rather than name (6%) a card. Perhaps something about the visualization process makes people more likely to think of this particular card.

Systematic studies such as these can help form the basis of a psychology of card magic. Magicians can improve their tricks by knowing which cards people like the best or choose the most. Meanwhile, psychologists can follow up on unexpected findings to understand why people may misreport seeing red Sixes or why the wording of a question may bring different cards to mind.

And this is only the beginning. Applying these results, we can uncover the mechanisms behind the principles of card magic. If magicians can influence the audience's decisions, what factors enable this influence? Why do people still feel like they have a free choice? Answers to these questions could provide new insights into persuasion, marketing, and decision making. Ultimately, we hope to develop a science of magic, where almost any trick can be understood in terms of its underlying psychological mechanisms. Such a science can keep the secrets of magic, while revealing the secrets of the mind.

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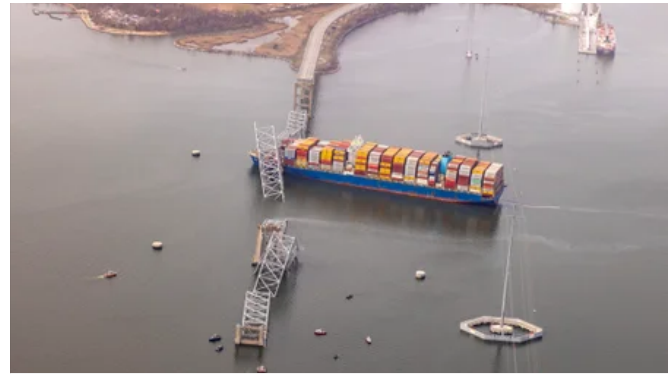


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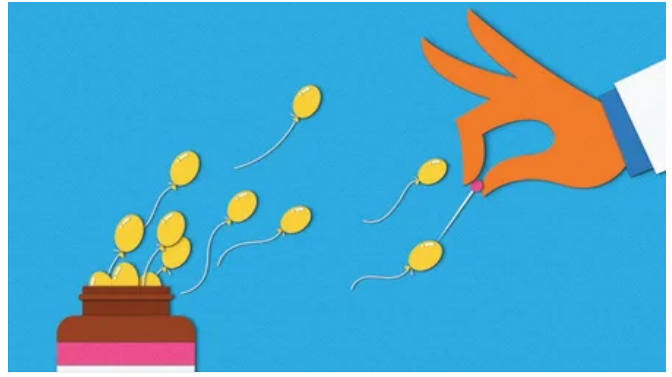


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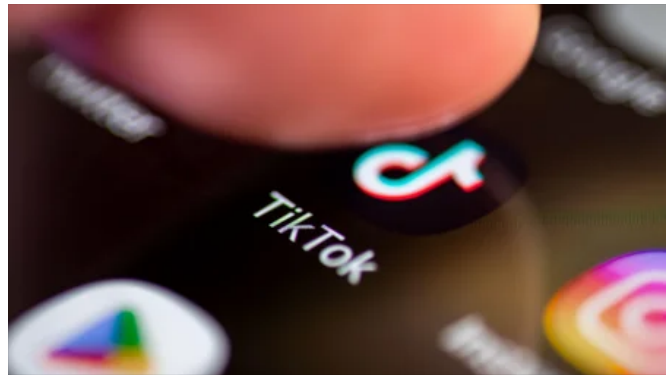


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