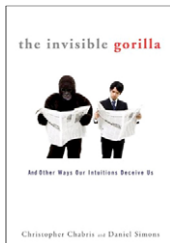


Mind's eye wide shut

The invisible gorilla: and other ways our intuitions deceive us by Christopher F. Chabris and Daniel J. Simons, Crown Publishers, 2010. \$27 (306 pp), ISBN 978-0-307-45965-7.

René Marois

Department of Psychology, Vanderbilt University, 530 Wilson Hall, 111 21st Avenue South, Nashville, TN 37240, USA



The Invisible Gorilla by Chabris and Simons is a lucid and engaging presentation of the illusions, or erroneous intuitions, that we hold about our mental capacities, and of the potentially devastating consequences such illusions can have on our health and day-to-day life.

The book covers six illusions, each devoted a specific chapter: the illusions of attention, memory, confidence, knowledge, cause and potential. In discussing the illusion of attention, the authors describe their most famous work on inattention blindness, which refers to the failure to perceive events, even striking ones such as a gorilla walking among people, when one is not paying attention to them. The authors make a clear case that we consciously experience far less than we think we do and that these limitations can have dangerous consequences (as in using a cell phone while driving). Just as the illusion of attention demonstrates how people see what they expect to see, the illusion of memory describes the discrepancy between what we remember and what we think we remember. Studies on the misattribution and distortion of source memories, emotional memories and flashbulb memories are all well described in this chapter. Together, the first two chapters stress the point that it is not only that people can be woefully unable to perceive or correctly remember events, but also that they are incredulous about such inabilities. This point is critical, because the illusion stems from the mismatch between how good people think they are versus how good they actually are.

The illusion of confidence refers to our overinflated opinion of ourselves, to our overconfidence in what we think we know and are capable of, and to our proclivity to believe and trust confident people. The illusion of knowledge, by contrast, comes into play whenever people think they know more than they do. For instance, describing how a bicycle works is actually much harder than one might first think. The authors suggest that such illusion might be at least partly responsible for poor performances at predicting such complex systems as the stock market and the cost of a large civil engineering project. Chapter 5 focuses on the illusion of cause, which refers to our bias in perceiving meaning or pattern rather than randomness and to inferring cause rather than coincidence. The potentially dangerous aspects of this distorted belief are well illustrated by a substantial proportion of the population hesitating to administer the measles vaccine to their

children for fear of inducing autism – because autism is typically diagnosed after the time of vaccine administration – even though there is no scientific evidence to support this theory. Finally, the illusion of potential refers to the belief that our mind has much greater capacities than we make use of and that it is easy to unlock these tremendous capacities. Brain-training or cognitive-training programs (recall claims that listening to music by Mozart enhances children's general cognitive abilities), the authors assert, capitalize on this illusion.

A concluding chapter discusses the potential origins of these illusions and how they can be overcome. The authors propose that such beliefs might arise from the dual nature of our cognitive system, with a fast automatic detection system that we use to intuit and a slow reflective system used for making deliberate decisions. Illusions would result from mistaken judgments about the limitations of the fast detection system, and only by using our reflective system can we cope with these limitations and adjust our judgments accordingly.

The book is heavily annotated and referenced, and the science is carefully and, for the most part, evenly presented. Perhaps a notable exception is in the concluding chapter, in which the proposed dual nature of our cognitive system could have been more clearly labeled as speculative. In addition, although the authors substantiate the case for each of the six illusions, these do not necessarily have clear boundaries. For example, the illusion of confidence is intertwined with other illusions, such as those of memory and knowledge. The extent to which some of these illusions tap into our intuitions is also at times unclear. The belief that we have immense untapped cognitive potential might be as much an effect of media and advertisement that capitalizes on people's general optimism as a reflection of deep biases in a specific cognitive ability. As too many infomercials remind us, such advertisements prey even more on our naivety to rapidly improve our physical appearance than on our cognitive abilities. Finally, it would have been desirable if the authors had covered two more issues. The first concerns visual illusions, as these can powerfully illustrate how our mind can trick us. If our brain can make incorrect perceptual guesses about the physical world that is immediately in front of our eyes, surely it can play tricks on more abstract, higher-level cognitive processes. The second is the research describing how misperceptions of mental traits can dramatically differ when one considers the self versus others [1]. However, these are relatively minor quibbles about a book that manages to present a dizzying array of scientific information in such a concise and engaging way.

The book is not designed to be encyclopedic or technical, and thus will be of limited use to specialists in the field. Rather, it is meant to inform and awe the reader about the multiple tricks that our minds can play on us. As many science vulgarization books, it does so by copiously introducing personal anecdotes and single-case experiences, varying from the Ben Roethlisberger motorcycle accident to David Foster Wallace's suicide. For the scientifically inclined, such strong leaning on real-world cases can sometimes be tedious and there is usually no strong evidence that these particular cases were caused by specific illusions, but I urge readers to carry on because the book is filled with several anecdotal gems.

A primary goal of popular science books is to educate, in an engaging and entertaining way, the general public about the natural or physical world, and Chabris and Simons do an admirable job in this book. However, an

additional underestimated value of popular science books is to turn on young minds to a potential education, if not career, in scientific research. The career trajectories of a great number of psychologists and neuroscientists were launched by the reading of a popular science book. In my case, that book was *The Conscious Brain* by Steven Rose [2]. I suspect that the *Invisible Gorilla* will fill the same role for numerous undergraduate and graduate students who have so far only a peripheral interest in the mysteries and complexities of the human mind.

References

- 1 Pronin, E. (2007) Perception and misperception of bias in human judgment. *Trends Cogn. Sci.* 11, 37–43
- 2 Rose, S.P.R. (1973) *The Conscious Brain*, Vintage

1364-6613/\$ – see front matter
doi:10.1016/j.tics.2010.08.003 Trends in Cognitive Sciences, October 2010, Vol. 14, No. 10