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Reinvent Wheel? Blue Room. Defusing a Bomb? Red Room.

By PAM BELLUCK

Trying to improve your performance at work or write that novel? Maybe it's time to consider the color of your walls or your computer screen.

If a new study is any guide, the color red can make people's work more accurate, and blue can make people more creative.

In the study, published Thursday on the Web site of the journal Science, researchers at the University of British Columbia conducted tests with 600 people to determine whether cognitive performance varied when people saw red or blue. Participants performed tasks with words or images displayed against red, blue or neutral backgrounds on computer screens.

Red groups did better on tests of recall and attention to detail, like remembering words or checking spelling and punctuation. Blue groups did better on tests requiring imagination, like inventing creative uses for a brick or creating toys from shapes.

"If you're talking about wanting enhanced memory for something like proofreading skills, then a red color should be used," said Juliet Zhu, an assistant professor of marketing at the business school at the University of British Columbia, who conducted the study with Ravi Mehta, a doctoral student.

But for "a brainstorming session for a new product or coming up with a new solution to fight child obesity or teenage smoking," Dr. Zhu said, "then you should get people into a blue room."

The question of whether color can color performance or emotions has fascinated scientists, not to mention advertisers, sports teams and restaurateurs.

In a study on Olympic uniforms, anthropologists at Durham University in England found that evenly matched athletes in the 2004 Games who wore red in boxing, tae kwon do, Greco-Roman wrestling and freestyle wrestling defeated those wearing blue 60 percent of the time. The researchers suggested that red, for athletes as for animals, subconsciously symbolizes dominance.

Effects that were perhaps similarly primal were revealed in a 2008 study led by Andrew Elliot of the University of Rochester. Men considered women shown in photographs with red backgrounds or wearing red shirts more attractive than women with other colors, although not necessarily more likeable or intelligent.

Then there was the cocktail party study, in which a group of interior designers, architects and corporate color scientists built model rooms decorated as bars in red, blue or yellow. They found that more people chose the yellow and red rooms, but that partygoers in the blue room stayed longer. Red and yellow guests were more social and active. And while red guests reported feeling hungrier and thirstier than others, yellow guests ate

twice as much.

Experts say colors may affect cognitive performance because of the moods they engender.

“When you feel that the situation you are in is problematic,” said Norbert Schwarz, a psychology professor at the University of Michigan, “you are more likely to pay attention to detail, which helps you with processing tasks but interferes with creative types of things.”

By contrast, Dr. Schwarz said, “people in a happy mood are more creative and less analytic.”

Many people link red to problematic things, like emergencies or X’s on failing tests, experts say. Such “associations to red — stop, fire, alarm, warning — can be activated without a person’s awareness, and then influence what they are thinking about or doing,” said John A. Bargh, a psychology professor at Yale University. “Blue seems a weaker effect than red, but blue skies, blue water are calm and positive, and so that effect makes sense too.”

Still, Dr. Schwarz cautioned, color effects may be unreliable or inconsequential. “In some contexts red is a dangerous thing, and in some contexts red is a nice thing,” he said. “If you’re walking across a frozen river, blue is a dangerous thing.”

Indeed, Dr. Elliot of the University of Rochester said blue’s positive emotional associations were considered less consistent than red’s negative ones.

It might also matter whether the color dominates someone’s view, as on a computer screen, or is only part of what is seen. Dr. Elliot said that in the Science study, brightness or intensity of color — not just the color itself — might have had an effect.

Some previous cognitive studies found no effect from color, although some used mostly pastels or less distinctive tasks. One found that students taking tests did better on blue paper than on red, but Dr. Schwarz said the study used depressing blue and upbeat red.

The Science study’s conclusion that red makes people more cautious and detail-oriented coincides with Dr. Elliot’s finding that people shown red test covers before I.Q. tests did worse than those shown green or neutral colors. And on a different test, people with red covers also chose easier questions. I.Q. tests require more problem-solving than Dr. Zhu’s memory and proofreading questions.

When Dr. Zhu’s subjects were asked what red or blue made them think of, most said that red represented caution, danger or mistakes, and that blue symbolized peace and openness. Subjects were quicker to unscramble anagrams of “avoidance related” words like “danger” when the anagrams were on red backgrounds, and quicker with anagrams of positive, “approach related” words like “adventure” when they were on blue backgrounds.

The study also tested responses to advertising, finding that advertisements listing product details or emphasizing “avoidance” actions like cavity prevention held greater appeal on red backgrounds, while ones using creative designs or emphasizing positive actions like “tooth whitening” held more appeal on blue.

When the participants were asked if they believed red or blue would improve performance, most said blue for both detail-oriented and creative tasks. Maybe, Dr. Zhu said, that is because more people prefer blue.

The study did not involve different cultures, like China, where red symbolizes prosperity and luck. And it said nothing about mixing red and blue to make purple.

For what it's worth, many newsroom walls at The New York Times are bright tomato-soup red. The newspaper's facilities department says there are no blue rooms in the place.