

STOP! Should you use the colour *Red*?



Which button would you press to stop the machine?

Silly question? “Of course, the red one” you say.

RED = STOP and RED = DANGER are stereotypes in everyday use, such as for road signs and warning signs. These colour associations are also stipulated in standards such as ANSI Z535 for colour codes.

But red doesn't always mean “STOP”. For example, with electrical processes the following convention may apply:

-  The system is LIVE, so it is UNSAFE.
-  The system is NOT LIVE, so it is SAFE.

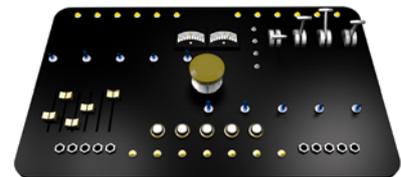
While this interpretation of colour is not an issue if a system is used by trained operators, it could be problematic if the system can be accessed by the public.

Discrepancies in the interpretation of colours has prompted calls for the redesign of colour coding systems, and for research into the best way to convey the meaning of the colour (for example, by also using labels)¹.

Don't assume that red is obvious

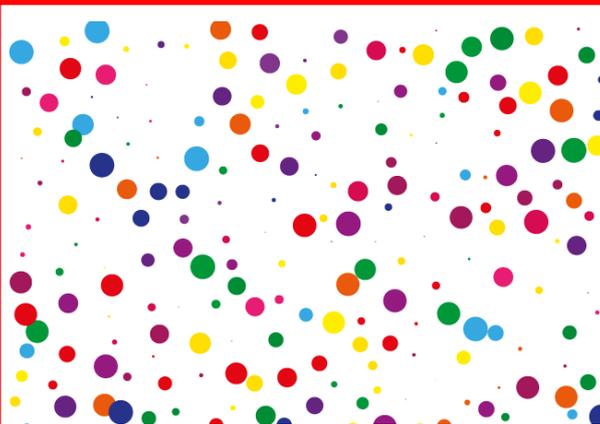


The red button on the control panel might look obvious to you if you have normal colour vision. But what if you have a protan colour vision defect? It may look like this simulation²:



Approximately 1 in 50 males have a protan colour vision defect (protanopia or protanomaly) and see red as a darker colour than the rest of the population.

When using colour in design, it is not wise to assume that other people see colour the same way that you do,



Find the red dots. Now find the yellow dots.

According to Andersen and Maier³, you probably found the red dots more quickly than the yellow dots.

In their study investigating how colours capture our attention, the authors discovered that red is found fastest in a complex display, followed by blue, green and yellow, and then by orange and purple. Contrast and luminance (apparent brightness) did not explain the speed difference. These results have implications for the design of maps, visual displays and visual search tasks.

References: 1. Ergonomics (2015) 58(12): 1974-1982
3. Applied Ergonomics (2019) 81: 102885

2. <https://www.color-blindness.com/coblis-color-blindness-simulator/>



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