Color associations with *love* and *anger* are stable and your mood doesn't matter!

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Summary Would you pick another color than red for love when in a bad mood? We investigated whether current mood states might overrun abstract color-emotion relationships. We found comparable color choices for four emotion concepts, irrespective of the participants' induced mood (joy or fear). The current affective state seems to have little impact on how one thinks about colors.
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Introduction When asked to represent current mood through color, participants are relatively consistent in their color choices (Jonauskaite et al., 2019). The study found that joyful mood was best represented by chromatic and light colors, often of yellow hues. Fearful mood was best represented by chromatic darker colors, often of red hues. Importantly, such relationships mirrored systematic relationships between color terms and emotion concepts (e.g., yellow-joy, red-anger; Jonauskaite et al., 2020).

Aims We investigated whether participants' current mood (i.e., joyful, fearful) would enhance or modify abstract color-emotion relationships.

Methods Between-subjects, we induced joy (37 participants, 13 men) or fear (40 participants, 10 men) with a validated mood induction technique (Mayer et al., 1995). We also induced a neutral mood in all participants (Velten, 1968) in analogy to an earlier study (see Jonauskaite et al., 2019). Then, while in a happy or fearful mood, using a computerized color picker, participants selected colors best representing four emotion concepts – *love*, *anger*, *disgust*, and *admiration*. Finally, participants indicated their current emotional state by selecting one emotion from the list of twenty terms, presented randomly. This allowed to check whether the mood induction had been successful.

Results For the hue selection, irrespective of mood induction, red was the most frequently chosen for both *love* and *anger.* Dark yellow and green hues were chosen most frequently for *disgust,* and yellow hues for *admiration* (Fig 1). Then, we compared color choices between the mood induction groups (including participants for whom the mood induction was successful). We found comparable color choices across the emotion terms in the joy and fear induction groups, whether comparing lightness, $t(147) = -1.43$, $p = .155$, chroma, $t(147) = -2.192$, $p = .030$, or hue, $\chi^2(8) = 1.37$, $p = .792$.

Figure 1: Color choices for the four emotion terms. The left / right hand panels show choices for the joy / fear induction groups.

Conclusions We found that color-emotion relationships were stable. They did not vary with the current mood, guaranteeing continuity in our immediate sensory environment. We conjecture that those affective representations of color are largely conceptual, likely driven by our shared knowledge and expressed in language. Our results have practical implications, for instance, when expecting mood change in response to color.

References

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