

each clip, completed a reporting task. The first group freely reported their emotional responses to each of 30 video clips.

"Their responses reflected a rich and nuanced array of [emotional states](#), ranging from nostalgia to feeling 'grossed out,'" Cowen said.

The second group ranked each video according to how strongly it made them feel admiration, adoration, aesthetic appreciation, amusement, anger, anxiety, awe, awkwardness, boredom, calmness, confusion, contempt, craving, disappointment, disgust, empathic pain, entrancement, envy, excitement, fear, guilt, horror, interest, joy, nostalgia, pride, relief, romance, sadness, satisfaction, sexual desire, surprise, sympathy and triumph.

Here, the experimenters found that participants converged on similar responses, with more than half of the viewers reporting the same category of emotion for each video.

The final cohort rated their emotional responses on a scale of 1 to 9 to each of a dozen videos based on such dichotomies as positive versus negative, excitement versus calmness, and dominance versus submissiveness. Researchers were able to predict how participants would score the videos based on how previous participants had assessed the emotions the videos elicited.

Overall, the results showed that [study participants](#) generally shared the same or similar [emotional](#) responses to each of the videos, providing a wealth of data that allowed researchers to identify 27 distinct categories of emotion.

Through statistical modeling and visualization techniques, the researchers organized the [emotional responses](#) to each [video](#) into a semantic atlas of [human emotions](#). On the map, each of the 27 distinct categories of emotion corresponds to a particular color.

"We wanted to shed light on the full palette of emotions that color our inner world," Cowen said.

More information: Alan S. Cowen et al. Self-

report captures 27 distinct categories of emotion bridged by continuous gradients, *Proceedings of the National Academy of Sciences* (2017). [DOI: 10.1073/pnas.1702247114](#)

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