The Effect of Age on Emotional Response to Color-Based Visual Stimuli

Ryan Dillon

Abstract

The age-related positivity effect is a trend in many existing experiments that shows that as age increases, overall positivity tends to increase as well. This is thought to be a result of the amygdala becoming less sensitive to negative stimuli over time, therefore becoming unable to associate the stimuli with a negative emotion. Therefore, with age, people would be less likely to associate a certain color with a negative emotion. To further assess how overall positivity is connected to aging, a survey was distributed to a group of participants (n=20). The participants were asked to self-report their emotional responses to different color-based images using the Discrete Emotions Questionnaire. Each individual was categorized into one of three age groups, and differences between the positive and negative affectivity of the images between each group were analyzed using a one-way ANOVA test.

Introduction/Hypothesis

Purpose: Several studies have shown conflicting trends regarding the age-related positivity effect, so it is not certainly known the effect that aging has on overall positivity. (Schweizer et al., 2019). By understanding how overall positivity changes over a lifespan, changes in environment or lifestyle can be made in order to improve quality of life.

Researchable Question: How does the age of an individual affect emotional responses to color-based visual stimuli?

Hypothesis: If age is increased, then the self-reported reactions to red-based stimuli will increase in positivity. Red is associated with danger, so responses should become more positive with aging in accordance with the age-related positivity effect.

Methods

SURVEY COMPOSITION

9 IMAGES

3 3 3

Images were taken from the Geneva Affective PicturE Database (GAPED) (Dan Glauser, 2011).

Chosen images depicted natural sceneries and contained solely inanimate objects.

Administered online to participants

Identified as one of three age groups:

15-20
21-40
41-60

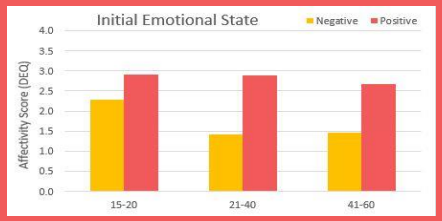
After viewing each image, participants ranked a list of 26 emotions using the Discrete Emotions Questionaire (DEQ) (Harmon-Jones, C., Bastian, Harmon-Jones, E., 2016)

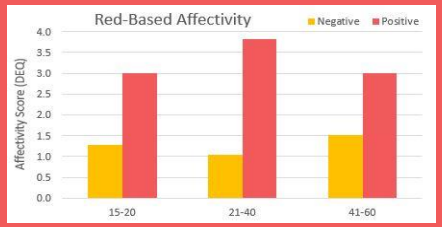
DEQ Scale

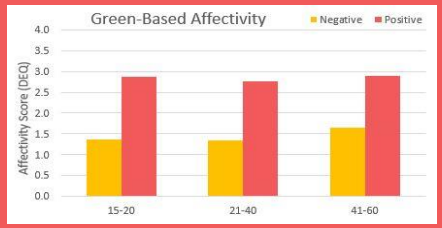
1	2	3	4	5	6	7
Not at all	Slightly	Somewhat	Moderately	Quite a bit	Very much	An extreme amount

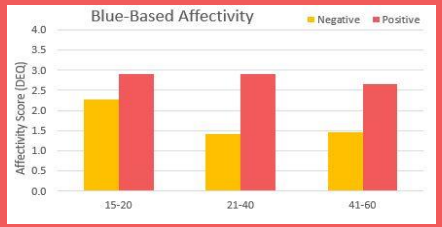
ANGER	DESIRE	ANXIETY	SAD
Anger Mad Rage	Wanting Desire Longing	Dread Anxiety Nervous	Sad Grief Empty Lonely
RELAX	**HAPPY**	**FEAR**	**DISGUST**
Easygoing Relaxation Calm	Happy Liking Satisfaction Enjoyment	Terror Scared Panic Fear	Revulsion Disgust

Results









Discussion/Conclusion

Findings: The oldest age group demonstrated the highest negative affectivity across all colors. The middle age group demonstrated higher levels of positive affectivity in comparison to other groups. The only statistically significant difference between groups was located in the negative red-based affectivity

Conclusions: The hypothesis was refuted. There was no linear trend between positive reactions to red stimuli.

Future Work

Future extensions could include analyzing this data, or doing a similar study, in conjunction with the participants' self-identified favorite colors, as well as conducting a similar study in younger children who may not have a solid emotional association with certain colors.

References

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