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Effects on Mood by Various Spectrums of Light from Eyeglasses

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This research paper investigates whether various spectrums of light can have an effect on mood. Eyeglasses of red or blue lenses were used to alter spectrum of light in this study. Participants in this study were male and female students from Lindenwood University ranging in age from 18 to 26. The research procedure consisted of a 10-minute questionnaire, interview and a perception test that will measure visual disability, mood, and bias to colors. The data collected from the three mood perception tests will be quantified and compared with one another to find if red spectrum of light influences a person's mood. The result of this study will prove valuable to learning, working, and commercial environments and prove the answers to the myth that life is better looking through rose-colored glasses.

The effect of various spectrums light on mood has been a curiosity of scientists ever since Sir Isaac Newton discovered and identified the color spectrum of light in 1666 (Van Wagner, 2006). In today's society, a majority of people want to achieve high performance levels. Human behaviors and performances are influenced by many ways; such as temperature, atmospheric pressure, time of day, as well as the person's state of mood. Researchers have found that various changes in environment color have proven to influence mood in various ways (Kutchma, 2003). Therefore, a wide range of research

was conducted through various experiments that strive to identify those altering factors, which play a role in both performance and mood. If you could identify what effect different colors have on mood is the main intent of this research project. Research that has ranged from the testing of lighting in work areas, to the color of paint used in buildings. This experiment will focus more on an individual's mood rather than the environment. By using sunglasses that induce a different spectrum of light and investigating whether a change in mood was present. Use of questionnaires, perception tests and personal interviews will be the data collected; the methods incorporated to support or disprove our hypothesis. We hypothesize that a red color of light will enhance the mood of the individual to be more optimistic and able to communicate better. According to the three interior color schemes on the mood and performance of workers study conducted by Kwallek in 1997, Woodson, Lewis, and Sales; investigates environments people move into and whether that affects the mood and performance of workers. This experiment will use the information collected by Kathie Engelbrecht, on the Impact of Color on Learning. In her experiment conducted in 2003 theorized that we have evolutionary response to certain colors. Being able to empirically distinguish whether the color has had a mood altering effect is the main goal of the researcher. Before and after the introduction each participant answered the following: interviews, tests, and questionnaires of the color stimuli to help the researcher make this determination.

The purpose of this study is to find out if the red spectrum of light produced by the red lenses can produce a better mood or optimism. Other studies have found that positive moods, attitudes and feelings will provide more success and better quality of life. The common term "looking at life through rose-colored glasses" is the phrase that sparked the interests of this study. It implies an optimistic view of the world. Why is the optimistic view implied with the rose-colored glasses? Another point of interest is the fact that United States Navel ships utilize red lights in all their areas below deck. Investigation of the reasoning behind their choice to use the red light will further support our findings in this study. Another point of interest is how the color red used in everyday life. Stop signs, exit signs, caution and warning signs are all red. Could red draw your attention more than other colors? Why does red draw more attention? Could the reason red is so noticeable is because it makes people more aware and put them in a better mood? Red is the same color of blood, when people see blood they may have the natural instinctual reaction to perform in a better way in order to survive. Maybe the fact that being in a better mood allows better chances to survive.

Method

Participants

Our participants recruited for this experiment will be undergraduate students at Lindenwood University and that are a part of the Human Subject Pool. Sex, race, age and ethical background are not considered in this experiment subjects will be asked if they have any visual disabilities study is based on visual stimulation, these participants

can still participant but their data will be discarded. In our study, the human subject pool was used, yet this is not a requirement in order to replicate this study. We are studying the change in mood so we should actually have a wide variety of participants to have represented our study. Our participants were recruited by using the Form B where they can sign up for the time to participate in the study.

Materials

The materials used in this experiment were two different types of questionnaires so that not everyone had the same questions in the same order. Pens for both the subjects and the experimenters, pictures that are used for the perception test, recording journal for the observer, informed consent forms for the observer and a copy for the subject, a feedback letter which will be given to the subject at the end of the experiment, recruitment schedules for the experimenter and the subjects, and glasses with clear-blue- and red lenses. The room used will consist of chairs, a table in a quiet area where the experiment will be conducted.

Procedure

A recruitment sheet was posted for participants to sign up for, once the schedule is checked the participants will receive a phone call 24 hours before their scheduled time. Upon arrival participants will be given two consent forms one for them to sign and given to the observers while the other is for their own records. The participant will fill out a questionnaire that will ask 10 questions that will determine their favorite color, rating of mood, visual disabilities, personality, and emotion. The questions will help us determine

if the participant's mood will be altered by the various colors. Next pictures and words will be verbally stated and shown to the subjects; the observer will be recording the subject's responses and body language to the cards shown. After the second questionnaire is finished, a feedback letter will be issued along with a detailed explanation of what the participant has helped the experimenters to accomplish.

Results

This experiment us a t-test to identify any significant findings and what effects different colors have on a persons mood. A statistical analysis showed that the red spectrum of light increases from 43% positive responses in the questionnaire to 53% positive responses in the visual perception test with the introduction of the red spectrum lenses, and 64% positive responses with the last verbal exam (see Table 1).

TABLE 1. Subjects' responses to type of questionnaire by color of lenses worn

	Questionnaire	Visual	Verbal
Control	60.8%	59.2%	63.3%
RED	46.6%	53%	61%
BLUE	66.2%	64.5%	65%

This increase in positive response supports the initial hypothesis that red spectrum of light improves mood. In the control groups the levels of positive responses stayed

similar through out all the tests. The blue spectrum of light also did not show a significant change. The degree of freedom is 2, with a variance of 2. The ANOVA result was 28 at a .05 alpha level which led the research to reject the null hypothesis. The analyzed data supports the hypothesis that red spectrums of light by sunglasses improve the mood and perception of a person.

Discussion

Colors have proven to influence human behavior (Kutchma, 2003), (but what did we find). Possible limitations of this study are low number of participants. If a wider range of a sample population was used a more significant, reliable study could be conducted. Ideally, we would have liked to see a consistent number of people with varying moods in both stimuli groups as well as the control groups. Having a high number people with good moods, bad moods, and indifferent moods in each group of stimuli would be ideal to get an accurate reading of whether mood affected by the change in the spectrum of light by the eyeglasses. The use of a standardized mood and perception test would provide data that would present more reliable and accurate data that could be easily quantifiable. An example of a standardized scale of mood measure is the DASS (Depression, Anxiety, and Stress Scale), which was used in other mood, color experiments (Kutchma, 2003). Another issue, which could be improved on in respect to the procedure, is to control the environment more. Having a consistent way to conduct a study so outside forces have no effect on findings would be desirable. Although there was a consistent theme of a controlled environment, there could be room for

improvement. When scientists strive to investigate the sensitive subject of perception, mood, or the mind precise attention applied, so that the experiment does not affect the participant in the study. Mood, perception, and the mind are all aspects of psychology that are not easily quantifiable, or influenced by the participant and experimenter. Providing an environment that allows the participant to convey what they think, feel, and perceive in an uninhibited manner is the ultimate goal of research scientists in the psychological world. Until these abstract areas in psychology are uncovered, the constant struggle to perfect this sort of environment will be the main limitation of all research experiments.

References

Engelbrecht, K. (2003). "The Impact of Color on Learning". *NeoCon*. 1-14. Perkins & Will. retrieved Feburary 22, 2006. www.designcrux.netfirms/infograph.html

Haruyo, O.,& Koizumi, N. (2000). "A Study on the Mood-Perception of Interior Colors Using Chromatic and Achromatic-Colors in an Exercise Room: A relationship between subjects aged in their twenties and forties to fifties". Otemae University, Japan. 1-2.

Kutchma, T. M., & Perdomo, E. (2003). "The Effects of Room Color on Stress Perception: Red Versus Green Enviroments." Undergraduate coursework in psychology at Minnesota State University. 1-11.

Kwallek, N., Lewis, C.M.,Woodson, H., & Sales, C. (1996) “Impact of Three Interior Color Schemes on Worker Mood and Performance Relative to Individual Enviromental Sensitivity”.

Sternhiem, M. & Kane, J. (1986, 1991). General Physics. Hamilton Printing: New York.

Van Wagner, K. (2006). “How Colors Impact Moods, Feelings, and Behaviors”. retrieved March 7, 2006, http://psychology.about.com/od/sensationandperception/a/colorpsych_p.html