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The Effects of Color on School Performance

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THE EFFECTS OF COLOR ON SCHOOL PERFORMANCE

Abstract

Color has a significant impact on people's lives. It is a powerful communication tool and can be used to signal action, influence mood, and cause psychological reactions (Hemphill, 1996). Some teachers choose to print test on differently colored paper to prevent cheating, but many have found an effect between colored paper and school performance. Previous studies have found that school performance was lower on test printed on colored compared to white paper. Specifically Skinner (2004) found that best performance was elicited by white paper. Using a between subject design, this study test the effects of color on school performance using pink, gray, and white paper.

Methods

Participants:

A total of 30 students at Western Oregon University participated in the experiment. The majority (52%) declared Psychology as their major. 25 (83%) participants were females and 5 (19%) males. The ages ranged from 18-41 and the average was 23 years old. 50% of the participants were Caucasian, 13% African Americans, 13% Mixed, 17% Hispanics, 3% Native American, and 3% Asian.

Materials and Procedures:

After completing a consent and demographics form, participants were asked to read a story about cactus. They were then asked to complete a worksheet that related to the story. Each of the worksheets consists of the same questions, printed with black ink, on white, pink, or gray paper. Participants were randomly assigned to each color condition. At the end of the worksheet participants were debriefed, thanked, and given extra credit for their participation.

STORY

The cactus is a plant which grows in very hot, dry places. They do not have leaves. Instead, they have spiny needles which stick out of their stems. There are many shapes of the cactus. Some are small and round. Others are tall like columns or pillars. Some are shaped like tubes or balls. Some are shaped like wheels. Some grow as trees or shrubs. Others grow as ground cover. Cactus flowers are big, and some of them bloom at night. Their flowers come out at night because they are pollinated by insects or small animals that come out at night. Insects and small animals carry pollen from one cactus to another.

Most cacti live in North and South America. Others live in Africa, Madagascar, and Sri Lanka. Cacti do not have very large leaves because large leaves would slow the water to evaporate. When water evaporates, it changes from a liquid to a gas. When it becomes a gas, it is light enough to move through the air. That would be bad for the cactus because the cactus needs the water to live.

Some cacti have waxy coatings on their stems, so that water will run down the stem to the roots. Cacti can absorb water from fog in the air since it does not rain very much in the desert. Most cacti have long roots which can spread out close to the surface so they can absorb a lot of water on the occasions when it rains.

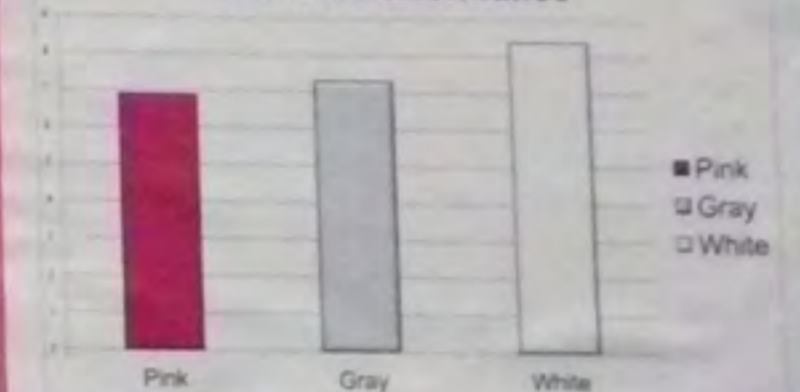
QUESTIONS

- 1) What do cacti have instead of leaves?
 - A. Spines
 - B. Tubes
 - C. Pillars
 - D. Needles
- 2) How are cacti shaped?
 - A. Like balls
 - B. Like tubes
 - C. Like wheels
 - D. All of the above
- 3) Where do most cacti grow?
 - A. North and South America
 - B. Southern Europe
 - C. Antarctica
 - D. Asia
- 4) Some cacti...
 - A. bloom at night
 - B. grow as vines
 - C. grow as shrubs
 - D. Both A and C are correct
- 5) Cacti prevent evaporation of water by...
 - A. growing small leaves
 - B. growing small stems
 - C. growing large leaves
 - D. growing long roots
- 6) When cacti bloom...
 - A. their flowers fall off
 - B. their flowers come out
 - C. they are eaten by insects
 - D. they are eaten by small animals
- 7) When water evaporates, it...
 - A. changes from gas to liquid
 - B. changes from liquid to gas
 - C. changes from liquid to solid
 - D. is absorbed by the stem of the cactus
- 8) A cactus can "absorb" water...
 - A. from fog
 - B. from rain
 - C. from dew
 - D. All of the above
- 9) Pillars are...
 - A. small balls
 - B. long tubes
 - C. tall columns
 - D. Both A and C
- 10) When cacti are pollinated, their pollen...
 - A. is carried from one cactus to another
 - B. is eaten by small animals
 - C. is eaten by insects
 - D. Both B and C are correct

Results

A one-way ANOVA was performed to test the effects of white, pink, and gray paper on school performance. Although, as expected participants scored highest on white paper ($M=8.4$, $SD=1.35$), second highest on gray paper ($M=7.3$, $SD=1.70$), and lowest on pink paper ($M=6.9$, $SD=1.66$), the difference was not significant ($F(2,27)=2.417$, $p=.108$).

Effects of Color on School Performance



Discussion

Even though there was a difference between the different colors of paper on school performance, the difference wasn't as significant as thought. Results supported the hypothesis that participants would score highest on white paper, second highest on gray paper, and lowest on pink paper. One reason why the study was not significant could be because of the small sample size (30 participants). Doing the study again with a larger sample size may change the significance of the experiment. Further studies need to be done, not only with a larger sample size, but also with participants that are more knowledgeable on the information they are tested on.

Previous Research

Sinclair, Soldat, and Mark (1998) had students complete their midterm on red or blue paper. Results supported their hypothesis that blue paper would lead to better performance.

Tal, Akers, and Hodge (2008) gave students identical forms of an exam. Results suggest that primary colors affect exam performance and pastel colors did not. Overall, students performed best on the exams printed on white paper.

Skinner (2004) had participants take a multiple choice test on white, blue, green, red, or yellow paper. Results showed that test on green and blue paper were significantly lower than scores on yellow. Also, suggest that test on white paper results in the best performance.