
The slide is decorated with various watercolor-style floral illustrations. In the top left, there are two light pink daisy-like flowers on a green stem with leaves, and a pink rectangular brushstroke. In the top center, there are clusters of red and pink flowers. In the top right, there are orange-red flowers on a green stem with leaves, and a pink rectangular brushstroke. In the bottom left, there are small orange-red flowers on a green stem. In the bottom center, there is a large, light green leaf. In the bottom right, there are small orange-red flowers on a green stem, and a light green flower outline.


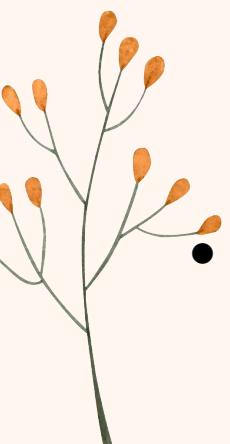
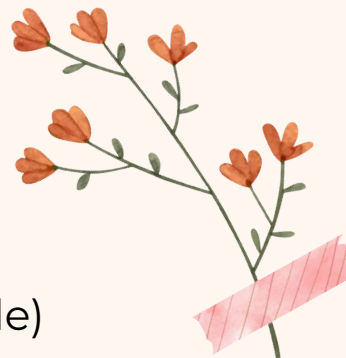
AP Psychology

Does surrounding
beauty have an effect
on test performance?

A thin, light brown horizontal line with small circles at each end, positioned below the main text.

Parameters

- Independent variable: surrounding beauty
 - I identified four components of beauty (more on next slide)
 - Decorations and organization of objects would act as treatments
- Dependent variable: test performance
 - To measure, I used a KenKen puzzle
 - Independent from prior knowledge or classes
 - Relatively unknown
 - Varies based on external conditions
- 2 groups: 16 participants each
 - Across all grades, if possible (not recorded)
 - Convenience samples from lower cafe



5+	6×	1−	
		2÷	
1−	6+	3	2−

Components of Beauty



Life

free beauty:
not influenced by
conceptions of its purpose



Color

strong historical
associations with beauty



Art

dependent beauty:
influenced by conceptions
of its purpose



Order


strong historical
associations with beauty





Hypothesis:

if a student's surroundings include elements of beauty, then they would perform better on an academic test.



Experimental Design



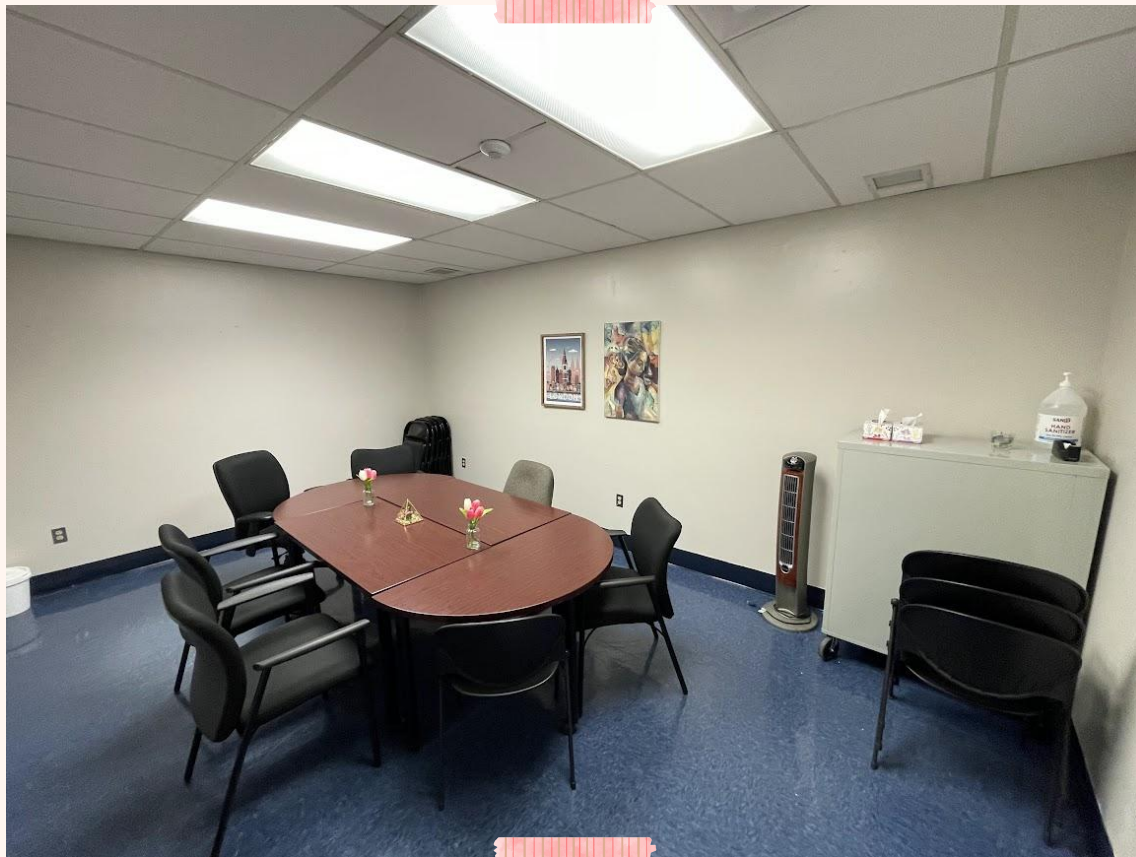


Room 119

- Conference room
 - Blank, able to decorate
- Low levels of noise and outside distractions
 - No prior mental associations



The “ugly room”



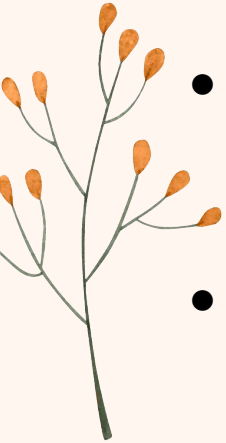
The “beautiful room”



The “beautiful room”

Procedure

- In pairs for expediency; no names were collected
- First asked if they had any prior knowledge of the puzzle in front of them, which was called a KenKen puzzle.
 - One participant from each group had recognized the type of puzzle, but neither had any prior knowledge as to how it was completed.
- Given a brief verbal description of the rules of the puzzle, and an opportunity to ask questions.
 - All instructions were also listed on the puzzle sheet.
- Informed that they had five minutes to complete the puzzle, and directed to note the analog clock to their right.
 - All participants received the same puzzle.



Group: _____

Your goal is to fill the whole grid with numbers. Every row and column should contain every number 1, 2, 3, and 4. In the heavily outlined areas (“cages”), you have to reach the number in the corner using only the operation in the corner. Cells with no operations given are freebies, you can just write down the number already given in the corner.

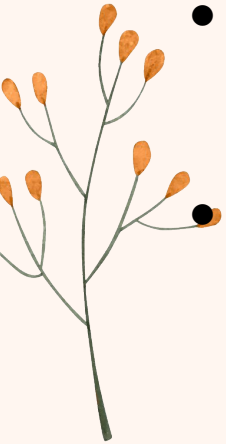
You have 3 minutes to complete the puzzle.

5+	6×	1−	
		2÷	
1−	6+	3	2−

KenKen puzzle sheet given to participants.
The “3” in the last sentence was crossed out to write “5”.

Procedure (cont.)

- Puzzles were collected, given a second sheet of paper to report the beauty of the room on a seven-point scale.
 - Intended to verify that participants indeed viewed the “beautiful room” as being more beautiful than the “ugly room”
- Beauty score sheets were collected, participants were debriefed on the purpose of the experiment and given an opportunity to ask questions.
- Instructed to not share information regarding the objective of the experiment
 - They could report to peers that they had to “complete a logic puzzle”



Group: _____

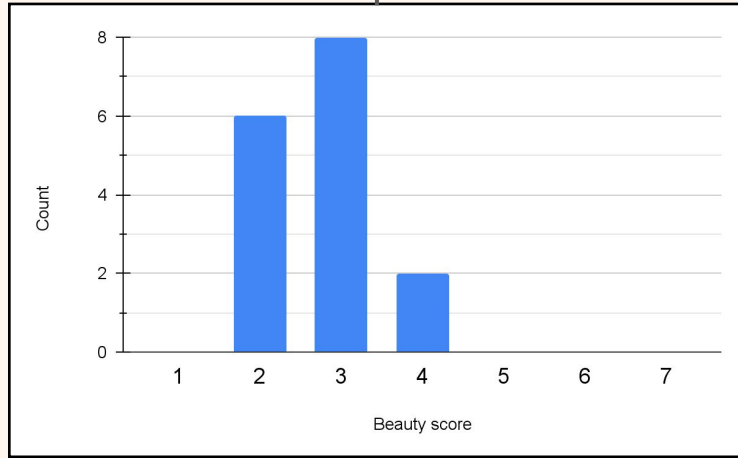
In terms of beauty, how would you evaluate the room you are in?
(1 being ugly, 4 being neutral, 7 being beautiful)

1	2	3	4	5	6	7

Results

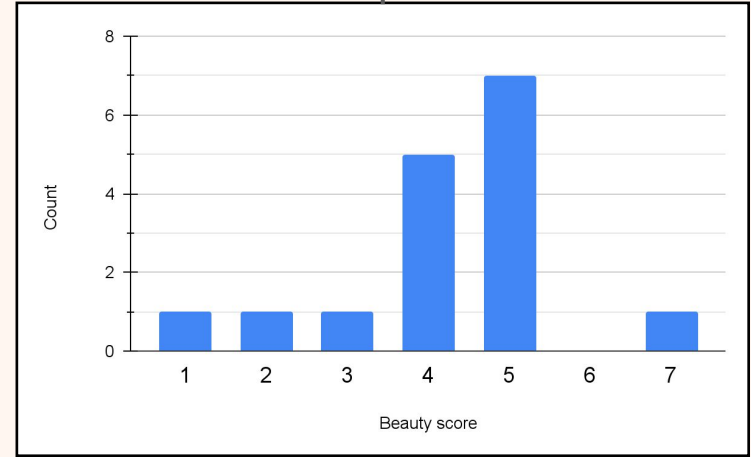


$p < 0.001$



Distribution of
beauty scores for
the “ugly room”

Average = 2.75

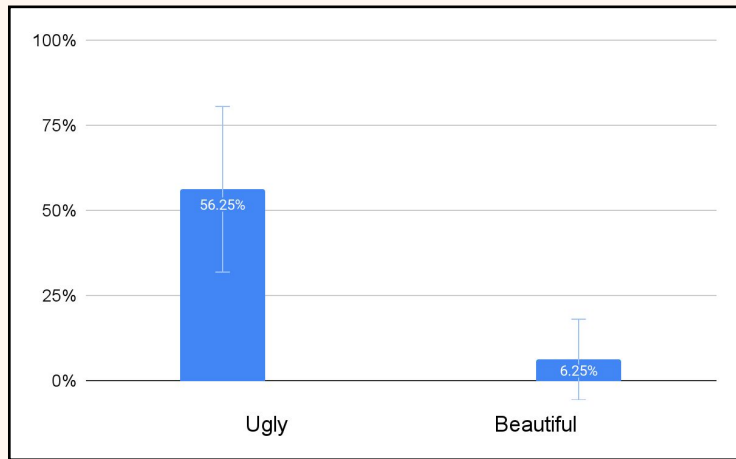


Distribution of
beauty scores for
the “beautiful room”

Average = 4.25

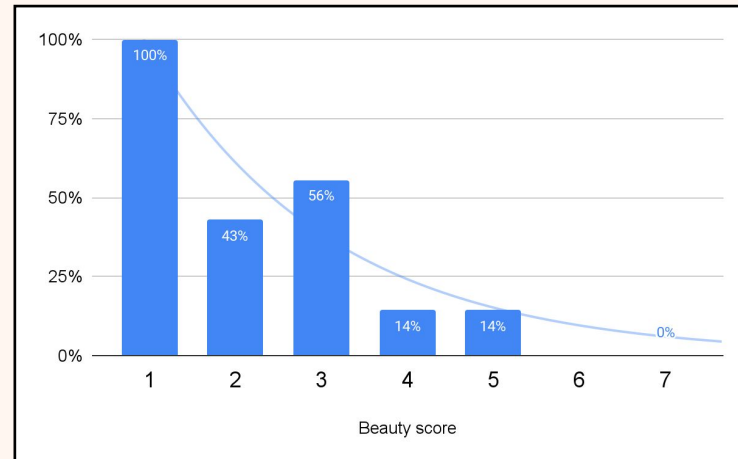


$p=0.002$



Proportion of puzzles
correctly completed
in each room

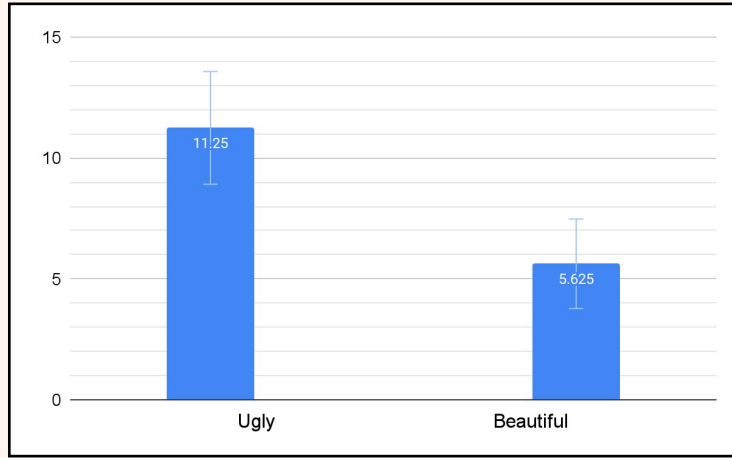
Bars depict 95%
confidence intervals



Proportion of puzzles
correctly completed
for each beauty score

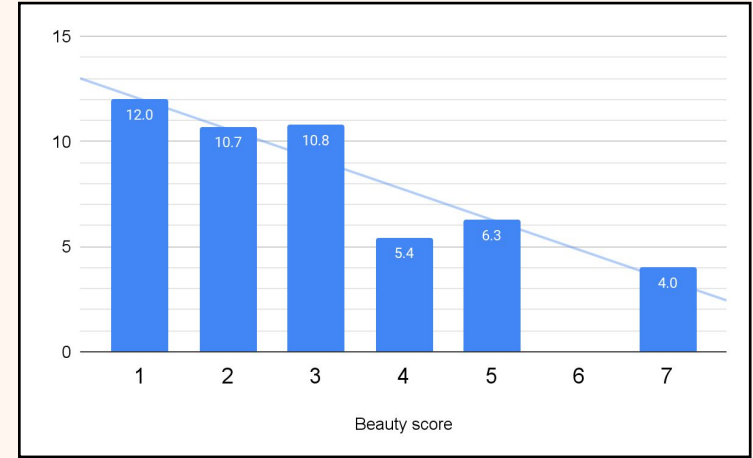
$$y = -0.971e^{-0.464x}$$
$$R^2 = 0.892$$

$$p=0.002$$



Mean number of cells correct in each room, out of 15 possible cells

Bars depict 95% confidence intervals



Mean cells correct for each beauty score, out of 15 possible cells

$$y = -1.44x + 12$$
$$R^2 = 0.854$$

Conclusion



Confounding variables?

Different times

Ugly room:
Periods 2–4,
Tuesday, May 17

Beautiful room:
Periods 4 & 5,
Thursday, May 19

Beauty scores impacted by performance

Because evaluation of
beauty happened
afterwards

Hypothesized confounding
impact was not observed


Not a confounding
variable for relationship
between rooms

IB French


An IB French test
was occurring in a
nearby room during
the latter portion of
the collection for the
beautiful room.

May have impacted
comfort or focus





The experiment provided
convincing evidence that the
inclusion of elements of
beauty in one's surroundings
hinders test performance.



The image features a central text 'Thank you!' surrounded by various watercolor floral illustrations. At the top left, a branch with small orange buds extends from the edge. In the top center, two large, overlapping orange-red flowers are shown. To the top right, a branch with many small orange buds is tied with a piece of pinkish-red tape. On the middle left, a single large leaf is sketched in light grey. Below it, a branch with several orange flowers is also tied with pinkish-red tape. At the bottom center, a branch with green leaves and small orange buds is visible. To the bottom right, a branch with several pinkish-red flowers is shown. Finally, another large leaf is sketched in light grey at the bottom right corner.

Thank you!