**Motivation**

Interior design experts:
- Horizontally striped walls make a room appear wider and lower, vertically striped walls make a room appear higher and narrower (e.g., Neufert & Kister, 2009).

Previous findings of surface-characteristics effects on the perceived size of small objects:
- Helmholtz-square (von Helmholtz, 1867): A horizontally striped square appears taller than wide, a vertically striped square appears wider than tall.
- Oppel-Kundt-Illusion (Oppel, 1861): An eccentric distance between two vertical sticks appears larger when divided by additional vertical sticks.
- OKI depends on the number of dividing sticks – e.g., Mikellidou & Thompson (2014): Maximum visual expansion with eight to 12 sticks, reversal of effect with one stick.

Visual expansion perpendicular to the orientation of striped patterns.

Who is right? Or, do interior space and objects behave differently?

**Method**

**Independent variables (IVs)**
- Room width: 4.30, 4.50, 4.70 m
- Ceiling height: 2.90, 3.00, 3.10 m

**Dependent variables (DVs)**
- Perceived width
- Perceived height
- Centimeter ratings in two separate blocks
- Order of blocks balanced between subjects

**EXPERIMENT 1**
- Pattern orientation: Plain, vertical stripes, horizontal stripes.
  - 3 trials per combination of the IVs × 2 DVs = 162 trials per subject

**EXPERIMENT 2A**
- Number of vertical stripes (spatial frequency):
  - 0, 4, 12, 36
  - 3 trials per combination of the IVs × 2 DVs = 216 trials per subject

**EXPERIMENT 2B**
- Number of vertical stripes (spatial frequency):
  - 36, 72, 144, 288
  - 3 trials per combination of the IVs × 2 DVs = 270 trials per subject

**Subjects**
- N = 20 subjects each

**Results**

Separate multiANOVAs for both DVs

- Wall pattern
- Room width
- Ceiling height

**Experiment 1**
- Pattern orientation: Plain, vertical stripes, horizontal stripes
- No effect of pattern orientation on width and height estimates.

**Experiment 2A**
- Considerable effect of the number of vertical stripes
- Smaller width and height estimates for low-frequency (up to 12 vertical stripes) wall paints than for plain (unstriped) wall paints.

**Experiment 2B**
- Larger width and height estimates for high-frequency (288 vertical stripes) wall paints than for plain (unstriped) wall paints.

**Conclusion**

- Larger width and height estimates for high-frequency (288 vertical stripes) wall paints than for plain (unstriped) wall paints.

When you seek to visually enlarge your room’s perceived size by means of a striped wall paint, we recommend working with a slender brush.

**Acknowledgements**

We are grateful to Agnes Münch for programming the experiments.

**References**


**Contact:** castell@uni-mainz.de