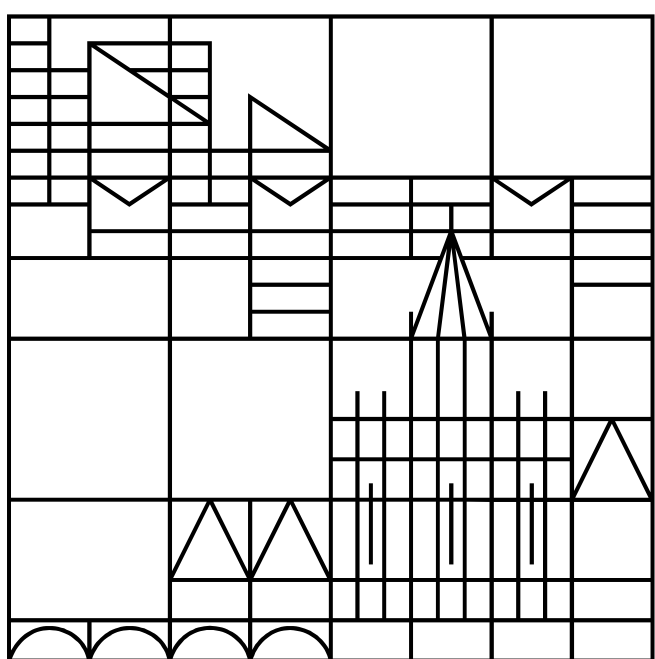


# Creativity and Beauty: Is symmetry a promising strategy in artistic creation?

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## Introduction

Aesthetic appreciation fundamentally differs between artists and laypersons, reflecting distinct cognitive processes that shape our perception of art. However, in creativity research, professional-level creativity (Pro-c) remains underexplored compared to everyday creativity (little-c). Our previous study revealed that non-experts prefer semantically interpretable images while experts favor ambiguous ones inviting intellectual elaboration, but methodological constraints inadvertently prevented symmetrical compositions.

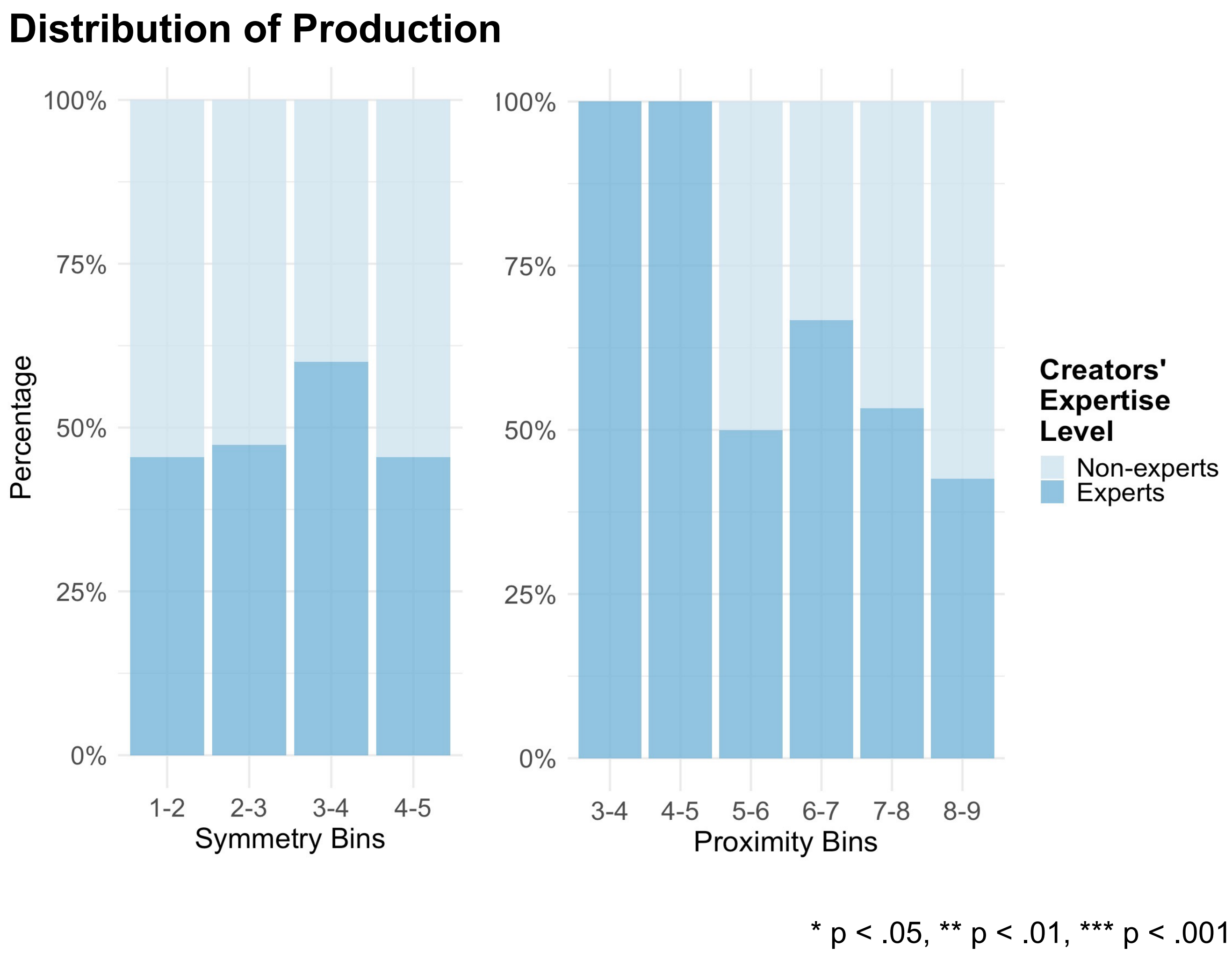
The present study extends these findings by examining how artistic expertise influences preferences for symmetrical composition. Through analyzing both production and assessment, we investigate:

- To what extent will symmetrical composition strategies be used?
- Do experts and non-experts differ in their aesthetic preferences for symmetrical vs. asymmetrical compositions?
- What role does proximity play in creative production and evaluation?

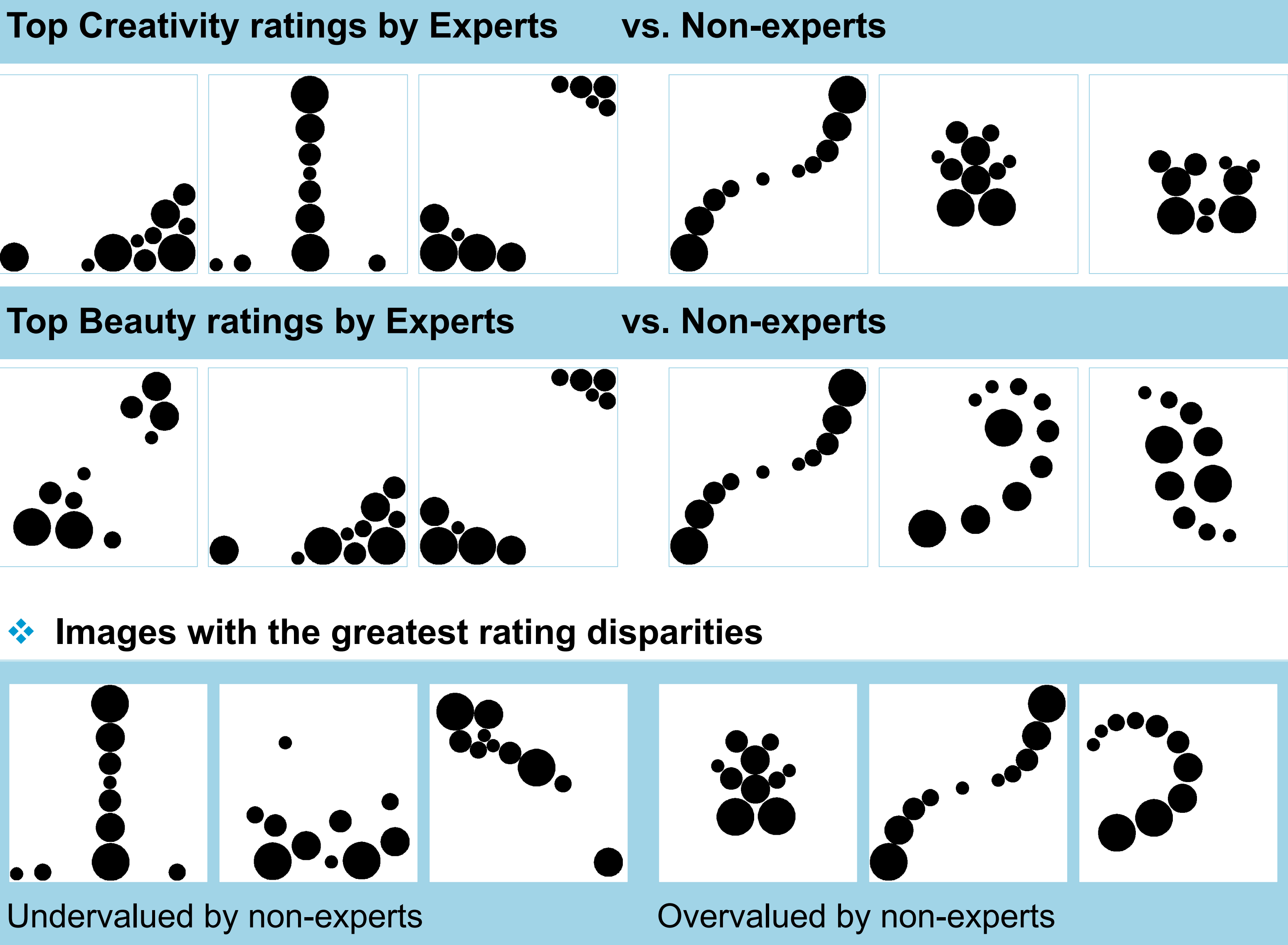
## Methods (CAT)

- ❖ **Part 1. Production**  
39 participants (19 experts, 20 non-experts,  $M_{age} = 31.4$ , 29 female) created two compositions in a random order, aiming for **optimal creativity** and **optimal beauty**, using five pairs of varying-sized discs.
- ❖ **Part 2. Assessment**  
49 participants (23 experts, 26 non-experts,  $M_{age} = 30.6$ , 39 female) evaluated the 78 individual compositions in a random order, using **1-100 rating scales** for both **creativity** and **beauty**.
- ❖ **Expertise**  
Participants were students or graduates from the University of Konstanz (likely to be non-experts) and the Royal College of Art (likely to be experts). Self-reported expertise levels were collected through demographic questionnaires to confirm the institutional expertise level classification.

## Results



(C=creativity ratings, B=beauty ratings)	Expert	Non-expert
Mean C	38.6 (SD=4.50)	35.1 (SD=7.25)
Mean B	38.5 (SD=4.73)	34.8 (SD=7.56)
Interrater reliability C	0.353**	0.778***
Interrater reliability B	0.426***	0.777***
Correlation C & B	0.526***	0.753***
Correlation between symmetry & C / B	-0.015 / -0.007 (both $p > .8$ )	0.503*** / 0.450***
Correlation between proximity & C / B	0.008 / 0.036 (both $p > .7$ )	-0.316** / -0.142 ( $p > .2$ )
Correlation between creator expertise & C / B	0.323** / 0.211	0.067 / 0.058 (both $p > .5$ )
Correlation expert C & non-expert C	0.05 ( $p = 0.66$ )	
Correlation expert B & non-expert B	0.232*	



## Discussion

In **Part 1**, we found that the tendency toward proximity (43.6%) emerged as a more profound organizational principle than symmetry (14.1%) in artistic creation, even with paired elements. This aligns with Hübner and Thömmes' (2019) discovery that closeness was frequently employed while placing a variable line refer to a fixed line. However, in **Part 2**, this proximity effect was significant only for non-expert creativity ratings. Clustering likely facilitates semantic interpretation and cognitive efficiency by reducing visual complexity. It aligns with non-experts' preference for semantic compositions.

Notably, **experts assigned higher creativity and beauty ratings to expert-created compositions**, suggesting recognition of sophisticated compositional strategies beyond symmetry or proximity. Unlike non-experts, experts maintained clear discrimination between creativity and beauty, demonstrating distinct multi-dimensional criteria. Moreover, our results showed non-experts' inability to recognize creativity that experts identified in certain compositions. This perceptual gap highlights how **expertise transforms aesthetic judgment**; non-experts often missed innovative approaches that experts readily appreciated.

## References

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Leder, H., Tinio, P. P., Brieber, D., Kröner, T., Jacobsen, T., & Rosenberg, R. (2019). Symmetry is not a universal law of beauty. *Empirical Studies of the Arts*, 37(1), 104-114.